AMERICAN AGRICULTURIST

For the Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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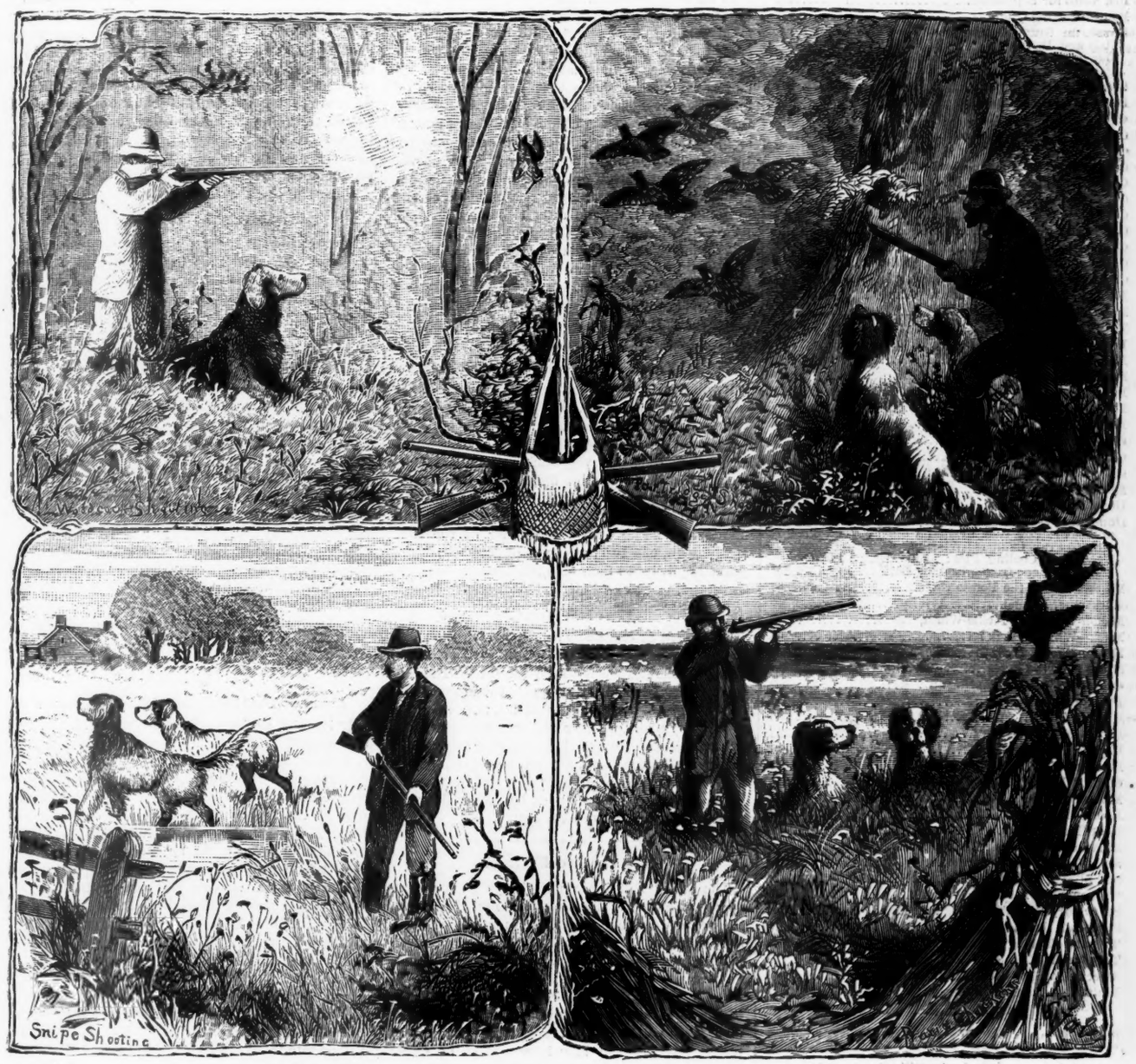

AUTUMN SHOOTING. *Drawn and Engraved for the American Agriculturist.*

"What has this to do with agriculture?" may be asked by some, as they look upon the above pleasing shooting scenes sketched by our artist. To answer this question, we may ask: Should any one take a few days of recreation with his gun? Is it proper or beneficial for any one to shoot the Woodcock, the Partridge, the Snipe, or the Prairie Chicken, either for the healthful exercise it brings, or for the delicate food the day's shooting may afford? One view of the matter is: If the results of a day with the gun are buoyant spirits from a close interview with nature; happier "state of mind" on account of freedom from care; increased intelligence coming from a knowledge of the habits of our native birds; and, finally, if a full bag gives a welcome variety upon the family table—if these results are desirable for any one, they are doubly so for the farmer. Shooting, like every other good thing, may be perverted, and the farmer who neglects his work for shooting is just as likely to go to the bad as a merchant or a machinist, but no more so. But we do not advocate a devotion to the gun to the neglect of the plow. Some persons think the farmer should fatten Prairie Chickens and Quail upon his wheat stubble for some one else to shoot. The writer thinks the farmer has the first right to the game that he has fed. The farmer who shoots should make himself familiar with the game laws of his State, and not only observe them himself, but make others do so. If he finds one shooting Woodcock in June, he should haul up the trespasser before the nearest Justice, and the same as to other birds. The farmer takes care to get the best plow and mower, and he should have the best gun. Even should a day of shooting require an amount of exertion quite equal to that expended in ordinary farm work, it is for a different object. The mind is diverted to different thoughts, and the labor that may be involved is of an entirely different kind, and leads to re-creation in its best sense.

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Free! Free! Free!

Great Improvements begin with the next (October) issue of the *American Agriculturist*, changes which will make the paper more attractive and valuable than ever. Send us the names of any of your neighbors or friends living anywhere in the United States, whom you think would like to see the paper, with a view to subscribing, and we will mail them copies post-free. The October issue will be a grand double autumn number, worth far more than an entire year's subscription price.

See, at once, Special September Notice on Page 388, and Please make the proposition known to Friends and Neighbors in time for them to take advantage of it.

AMERICAN AGRICULTURIST.

NEW YORK, SEPTEMBER, 1882.

Suggestions for the Season.

Trouble in the Clover Stacks.

In some localities, in the older Southern States especially, farmers who put up their clover hay in good condition, are surprised to find, when they come to feed it from the stack or mow, that it is apparently very mouldy, and hesitate to use it. A close examination shows that the appearance of mould is very deceptive, and that the whiteness is really due to great multitudes of silken threads, spun by the clover worm, (*Asopia costalis*,) an insect that has been brought here from the old world, but which makes itself quite at home. The insects are usually found in the greatest numbers at the bottom of the stack, and after it has once established itself, nothing can be done for the hay. The farmer who finds his clover hay in this condition, should not, another season, stack or store his crop in the same place. It has been suggested that placing the stack upon a foundation, that will allow ventilation from below, will be of service.

Work with the Roots.

It will usually pay to go through even broadcast turnips, and thin them, and pull or cut out the strongest weeds—smart-weed, rag-weed, etc., and when roots are in drills, it is absolutely necessary. Even when roots are very backward, and the outlook is discouraging on the first of September, thinning, weeding, and hoeing will make a crop. All kinds of turnips do their best growing after cold nights are, so to speak, the order of the day. Loose earth, and full possession of the ground, are prime requisites to their doing their best.

Buckwheat.

This plant is extremely sensitive to frost. The grain which is already matured, or nearly so, is not hurt, and the straw is not used for feed. The reason why frost is so injurious, may therefore not be apparent, until we think, or notice, that upon almost every plant, we have the seed in every stage of development, from the blossom, to the ripe grain. When cut before frost, a great proportion of the unripe seed will develop perfectly, and the process of ripening does not seem to be hindered by the frost after the Buckwheat is cut.

Go to the Fairs!

The term "Fair" may not always be the most appropriate one for the autumn Shows. *Exhibition* is a better word, but far less frequently used. Not only should the farmer go to the Fair, but he ought to take his family with him. The going, simply, is not enough. All members of the household should make it a point to take something to exhibit. One of the boys may take a fine colt, and if it is his own, there will be all the more pride in obtaining a prize. Another son may have a yoke of steers that he has trained for the exhibition. As for the girls, there are a thousand different things that can be made with the needle that will grace the walls of the "Woman's Pavillion," or the rooms of the Household Department. Even so common a thing as bread may be baked with special care, and will attract much attention. Then there are the garden vegetables, potatoes—a new kind, perhaps—pumpkins, squashes, etc., and the products of the farm and orchard. It is not wise to leave all these things at home, and then criticise the Exhibition because you can say, "We have better things at home." To go and take things to the Fair is not enough. The Exhibition should become a school at which all exhibitors and visitors make a study of the implements, cattle, poultry, fruit, grain, etc., that are there. A farmer may owe his success in growing some crop to the knowledge gained at a town Fair. The farmer that has a real pride in the farm will take great interest in the local Fair, and will exhibit the best products of farm life in the boys and girls, who are interested exhibitors at the Fairs. The day at the Fair should be a social one, every one making it a point to meet many neighbors and others with a pleasant word. It is a place for asking and answering questions, and the person who goes through the Exhibition without opening his mouth, is certainly not getting all the good that is within his reach. It is our advice that all go to the Fair—all take something to show, and all find out as much as possible about all the various exhibits that are made by others. In this way the day at the Fair will be a most profitable one. It may be that a premium will not be taken by every one, but the prize money is only a small part of the value that an exhibitor may receive from a Fair, that has been used as a means for a better understanding of the products of the farm, garden, and household.

Putting Away Tools.

The wearing out of farm implements is, as a rule, due more to neglect than to use. If tools can be well taken care of, it will pay to buy those made of the best steel, and finished in the best manner; but in common hands, and with common care, such are of little advantage. Iron and steel parts should be cleaned with dry sand and a cob, or scraped with a piece of soft iron, washed and oiled if necessary, and in a day or two cleaned off with the corn-cob and dry sand. Finally paint the iron part with rosin and beeswax, in the proportion of 4 of rosin, to 1 of wax, melted together and applied hot. This is good for the iron or steel parts of every sort of tool. Wood work should be painted with good, boiled, linseed oil, white lead and turpentine, colored of any desired tint; red is probably the best color. Keep the cattle away until the paint is dry and hard, or they will lick, with death as the result. If it is not desired to use paint on hand tools, the boiled oil with turpentine and "liquid drier," does just as well. Many prefer to saturate the wood-work of farm implements with crude Petroleum. This can not be used with color, but is applied by itself, so long as any is absorbed by the pores of the wood.

Early Fattening of Animals.

It is quite as important to fatten and market economically, the animal products of the farm, as it is to raise them. A pound of beef, pork, or poultry, can be made much cheaper in September and October, than later in the season, when a larger part of the rations must go to keep up animal heat. There is no sleight of hand in laying fat upon an animal's carcass. It must come out of good honest food in the rations fed. The temperature in the latter part of summer and early autumn, is in favor of the best use of all the fattening articles of food, while there is enough of green food to sharpen the appetite, and keep up good digestion. We have found green corn stalks, especially sweet corn, an excellent article in the stye, to be fed in connection with corn on the cob, and corn meal, and other rations. We have never seen pork made more rapidly than with this kind of feeding. It will be safe to feed all that the swine will eat up clean, and no more. Slack up the feed a little when anything is left in the trough. This will require a little attention, but the pigs will grow so fast, that one can afford to linger by the stye a few minutes, once in a day, to see the fat accumulate. Corn is high this season, and we want to make the best use of it. The best poultrymen we know, begin to give extra feed in September, when they mean to kill in November. The Thanksgiving market is pretty sure to be a good one, and brings ready cash. The small potatoes boiled, and mixed with Indian meal and hot water, make an excellent feed for turkeys and other poultry. This favors growth, as well as fattening. The rations of corn and other grain, unground, may be reserved to the last few weeks of life. Turkeys should have their liberty all through the extra feeding. Some poultrymen shut up their geese and ducks, but we doubt the economy of this method. With a good run,

they will have a greater variety of food, and thrive better with an access to a pasture with pond or brook, while they are receiving full feed for market. All that the fattening animals will eat up clean, is a good rule for the last month of feeding.

Whitewash the Out-Buildings.

There is no more healthful method of keeping the stables, sheds, and pens clean, than to give them a good coat of lime-wash. The wash is easily and quickly made as follows: Slake a bushel of fresh lime in a pork, or other barrel, with water enough to make a thick paste, after which fill up the barrel with hot water, and let it stand for a few hours. This wash may be applied in various ways. It may be spread upon the walls with a large whitewash brush, and no pains need be taken to do a neat job. Whatever wash falls upon the floor in the operation, is not lost, but helps to sweeten the stable or stall. The quickest and most satisfactory method, is to use a force pump, by which the lime-wash can be thrown into every crack and corner.

More Mutton-Sheep.

The breeding time for sheep is just ahead, and flock-masters should be planning for early lambs, to meet the wants of the market next season. We need more fine-wooled sheep, more long-wools, but especially more mutton-sheep. The manufacturers can get wool to suit their purposes, if they have to import it; but good mutton for the million, if had at all, must be raised within easy reach of the local markets. There is a lamentable dearth of good mutton in the village and rural markets, as we know from a personal experience of thirty years and more. Lamb is quite plenty in the summer months, at the retail price of twenty to twenty-five cents, and mutton in the fall months at a little less price than good beef, but the rest of the year it is hardly to be had at any price, as if it were a thing out of season, like strawberries in December. We ought to have mutton the year round, so that delicate stomachs that eschew veal in spring and fresh pork in winter, can have a change from beef and poultry to mutton-chop at their convenience. Good dog laws have been passed in some of the States, so that sheep-raising is possible, and the owner gets damages when his flock is worried by the dogs. There is improvement, but it is very slow, and there is great want of information as to the best breeds for mutton, and the best way to improve the flocks of common sheep. The pure Southdown is the mutton-sheep of all other breeds, unquestionably. Then, after this, the various other families of Downs, as the Hampshires, and other English shires, taking the names of the counties in which they are bred. A Southdown ram, running with a flock of Merinos or common sheep, will bring grades giving an excellent quality of lamb and mutton, though not equal in flavor to the purely bred. If these grades are put with a Cotswold ram, we have a sheep much increased in size, with an excellent quality of mutton. This cross gives a carcass from one-quarter to a third larger than the grades, and sometimes one-half. The lambs mature early, and are great favorites with the butcher. We have found no better cross than this in our sheep breeding. It is not necessary now to pay fancy prices for good breeding rams, either of the Southdown or Cotswolds. They are quite widely distributed, and can be had at prices within the reach of any thrifty farmer. To get the best service out of the ram, he should not be left to run loose with the flock, as is the common practice, but should be kept by himself, on generous feed, and led out when the ewes are in heat. Kept under this restraint, he will serve a larger number of ewes, and the offspring will be more vigorous. Mutton-sheep are so easily raised, and the flesh is so wholesome an article of diet, that every owner of a good grazing farm ought to cultivate them for the supply of his table and the local market. The export of mutton carcasses to England has become a large business, and cannot fail to stimulate this industry. Get more Southdown blood into your flock.

Harvesting the Corn Crop.

The best way to harvest corn, is no doubt to cut it up at the ground (see fig. 1,) the closer the better. The lowest joints of the corn stalk are much stronger than those higher up, and it is an object to set up the stook so that the valuable portions are as far as possible above the ground. There is no gain in cutting so as to leave these tough ends of the stalks in the field (see fig. 2.) They are not eaten by cattle, and will be turned under at the next plowing; most farmers think that they save a good deal of labor in not hauling them to the yard, and back in the form of manure; but there is

Fig. 1.—CORN CUT LOW.

a positive loss: 1st, because there is more danger of the stooks getting down, and the corn and fodder becoming wet and decayed; 2d, because it is better to have this inedible portion of the stalk, become partially decayed and soiled by the ground than a portion where the leaves are attached; 3d, because it is best to cart to the barn-yard or compost heap, all such rubbish, potato-vines, and much that farmers are in the habit of leaving to rot, and to be plowed in on the field. It is an easy matter to go to the field with a corn knife, and cut up the crop, setting it up around a center "hill," which remains uncut, or about two "hills," with their tops twisted together, and to finish the stook by binding the tops with a band of limbered suckers, or weakly stalks. Such stooks will be sure to fall over, and much of the corn will be damaged as well as the fodder. It is much better to go prepared to make a first rate job of it. A stooking-horse is almost indispensable to putting up stooks that will stand. The common corn knife is good enough for cutting corn by hand, but a light steel field-hoe, well sharpened, having a handle 12 to 14 inches long, to which a strap is attached as shown in fig. 3, is better for cutting close to the ground. It needs only a single blow to cut up a "hill." The question as to the number of "hills" to the stook, may be settled by the size of the corn, and preference of the farmer. In general the fodder will be better if the stooks are large—say containing 36 hills each. The accompanying diagram, fig. 4, shows the position of the stook in the center of 24 hills, of 25 hills, of 30 hills, and of 36 hills. The difference in the distance one has to carry the out-side hills is not great. In the case of 25 hills, the stook is built around the center hill, which may either be cut up or left standing; and in the case of 30 hills, two hills may be joined by their tops. The additional security against blowing over, is so little, that it is usually best to cut up these center hills. If properly set around a "horse," and well bound, corn stooks stand firm long into cold weather. Willow or other tough withes are the best bands, but to use them with greatest satisfaction, one needs a binding winch, fig. 5. The withes should be prepared beforehand, twisted or wrung so as to separate the fibres throughout the whole length of the withe. To bind a stook, the pin is run through one eye of a small rope three feet long, having an eye spliced in each end; then holding the winch in the right hand, the rope is thrown around the stook and caught by the left hand. The pin is driven into the stook, where the band should go, and the free loop slipped over the short end of the crank-bar of the winch, when by turning the crank the rope is tightened, and when tight enough, the band is put on, and then the winch is taken off. A stook so put up will stand up in good shape all winter.

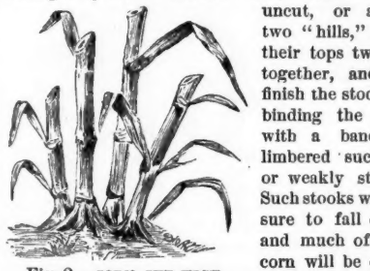


Fig. 2.—CORN CUT HIGH.

Fig. 3.—A HOE CORN CUTTER.

Feeding to Enrich the Soil.

It is now time to pay special attention to the fattening of swine, beeves, etc. Other things remaining the same, the larger the number of animals fattened, the better it will be for the farm. To this end it is usually best to buy oil-meal, and other rich, concentrated foods, and feed them liberally with the hay and other fodder obtained from the farm. Should the soil be poor, or partially exhausted, this is one of the best methods of enriching or restoring it. In the fattening of farm stock, but a small portion of the essential soil elements of plant food is retained by the animal, so that there is a double gain by the operation. There will be

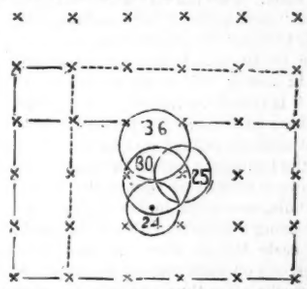


Fig. 4.—THE POSITION OF THE STOOK.

a handsome profit on the animal that is sold, and a large supply of good manure that is left, with which to enrich the land for future crops.

Selecting Seed Corn.

The importance of sowing or planting good seed, can not well be over estimated. The law of "Like produces Like," is forcibly illustrated in the case of corn. There are instances where a difference in the seed made all the difference between a paying

Fig. 5.—WINCH FOR BINDING STOOK.

and a losing crop. In selecting seed corn, great care should be taken that it is the best. It is not always an easy matter to decide which are the best points. For example, some farmers may prefer two medium sized ears, instead of one large one upon a stalk. We are content with one good ear to the stalk, but it must be long, sound, well filled out, heavy, early ripened, and one that is husked with ease. We ask for only one such ear, and it is asking enough of any single corn-stalk. An equally good ear with a nubbin on the same stalk, is not preferred. In the latter case, the product may revert to the poor ear, to which it is so closely

related. The selection should be made while the stalks are standing, and if necessary, give the chosen ears special advantages for early and perfect maturity, by removing the "suckers," or anything else that would deprive the stalk of making the best growth. The stalk can be easily marked by some straw or cloth tied around it. So soon as ripe, the seed ears should be husked, and placed in a safe place. It is a good plan to hang them in bunches by their husks to the ridge-pole of the corn house, thus providing good and safe keeping for the corn.

The Care of Celery.

Celery is one of the plants which make a rapid growth in this month of cool nights and warm days. The plants that have been growing in their own way, will need to have their outer leaves straightened up, and the growth of the plants directed upwards. This is done by an operation the gardeners call "handling." The soil between the rows of celery is loosened, and drawn towards the plants with a hoe; the leaves are to be brought to an upright position with one hand, and held thus by pressing the soil firmly to their base with the other hand. This is a very different operation from that of "earthing up" for blanching; its object is merely to bring the plants into a proper shape for future treatment. Indeed, for the celery to be used in winter, this is all the attention it needs until it is stored in trenches, as it undergoes the blanching in those. To prepare celery for early use, it must be banked up; in two or three weeks after the handling process, the earth from between the rows is banked up against the stalks, covering the whole, save a few inches of the longest leaves, and leaving a steep smooth wall of earth. On the large scale this is done by men working with spades, one on each side of the row. In three or four weeks after thus earthing, the stalks will be blanched and ready for use. Only as much as will be used or sold within a short time are earthed up during this month, and the early part of next, as the plant is still growing, and the stalks will soon become hollow and useless, if growth continues after earthing. The celery will be much better if allowed to grow until checked by cool weather at the end of the season, and then placed in boxes or trenches, to blanch for later use.

Chrysanthemums for the Window.

It seems strange the Chrysanthemum receives comparatively so little attention in this country. In England there are numerous societies devoted solely to the promotion of its culture, and the competition to secure the prizes is active. The plant is occasionally seen in our gardens, but not so frequently as it should be, considering its great variety of brilliant colors, and its flowering among the very last things of the season. Indeed they continue in bloom so late, that a severe frost is apt to cut them down before their season of beauty is over. For those who wish the best results from the plants in house culture, they should be started for that purpose and cultivated in pots from the outset. The English, with their prize plants, not only do this, and take great care in cultivation and pruning, but in order to get the finest and largest flowers, remove all but two or three buds from each stem. Those who are so fortunate as to have Chrysanthemums in the garden, can prepare a part of them for blooming in the window. They make a brilliant show, and their time of blooming may be greatly prolonged. The plants may be taken up and potted as soon as the buds are fairly formed; if the clumps are large and much crowded, thin out the weaker stems, giving the plants a rich soil. They will wilt and look rather sorry at first, but by placing them in the shade a few days, they will soon recover. Should they be attacked by a blackish plant-louse, as they often are, the free use of tobacco-water will clear them. When the plants have recovered, set the pots where they will be sheltered from heavy winds, and give proper attention to watering. They need not be taken in until there is danger of severe frost, and should then be in a room, the windows of which can be opened on mild days. By avoiding close confinement and too much heat, the bloom may be greatly retarded and also prolonged. After the flowering is over, cut the stems completely away, and put the pots in the cellar, taking care that the roots do not get so excessively dry during winter as to kill them.

The Melon-Worm, and Pickle-Worm.

It would appear that a particular culture only need to be started in a locality to bring in a number of heretofore unheard of insect enemies. A marked illustration of this is afforded by the Cranberry. The Cranberry can only be profitably cultivated in localities having certain natural advantages. In these few places, large areas are devoted to this one plant, and as a consequence, a number of insects, heretofore unknown, have made their appearance and diminish the growers' profits. It is not only with such local crops as the Cranberry that these invasions occur, but let some crop that has heretofore been grown in a small way, without

THE MELON-WORM.

molestation, be largely cultivated in any locality, and insects will be sure to enter their protest, and insist that they shall be taken into account when the grower reckons up his profits. It is only within a few years that certain persons, in Georgia and other Southern States, finding that it would pay them better to grow Melons for the northern markets than it would to cultivate cotton, that we have heard of "The Melon-worm." It is no new insect, but it is only since Melons have become abundant and have been raised by many acres, that it has become troublesome. Just as our greatest Potato pest, the Colorado Beetle, only became known when it was supplied with abundant food, so this enemy to the melon-grower has only been annoying as melon fields have become numerous. The insect was described as a native of this country over a hundred years ago, but it was then known only to scientific entomology. Within a few years it has demanded the attention of the practical entomologist. The melon-grower in the Southern States finds that the leaves on his promising plantation appear to be troubled. An examination shows that the fruit is also attacked; worms have eaten into the growing fruit, as many as half a dozen on each one, making unsightly holes, and causing general devastation. The worms are of a light yellowish-green color, somewhat translucent, and are about an inch and a quarter long. They feed upon the leaves, the vine, and the young fruit indiscriminately, causing destruction wherever they go. When full grown, they make their chrysalides upon the leaves of the Melon, or on the flexible leaves of any other plant near at hand. They coil up the leaves by means of a web, to form a shelter, where they undergo their transformations, and finally issue as a very handsome moth, the scientific name of which is *Phacellura hyalinitalis*. The engraving represents the different states of the insect—the larva, the pupa within its coiled leaf, and the perfect insect, or moth. The moth, long known in cabinets for its beauty, has a spread of wings of about an inch; these are of an iridescent, pearly whiteness, except a narrow black border. The body and legs are also white and glistening, while at the very end of the body is a curious movable tuft of feather-like appendages, of a pretty buff color, tipped with black and white. The number of broods of this moth in a season is not well known, but it is ascertained that the insect passes the winter in the chrysalis state. The Melon-worm has completely ruined plantations in Florida, Georgia, and in other Southern States, its ravages in some localities being so disastrous as to cause some to abandon Melon culture altogether.

REMEDIES.—It has been suggested to plant Melons very early, so that they may ripen, and be out of the way of the most destructive brood of worms. As the first brood no doubt feeds upon the leaves before the fruit sets, it is suggested that especial attention be given to this first brood by hand-picking and the use of insecticides, among which Pyrethrum is regarded as likely to be of use. As occurs with other insects when they become abundant, some natural enemies to the Melon-worm have already appeared in the form of parasitic flies, which deposit their eggs in the body of the worm.

THE PICKLE-WORM.—In Southern Illinois, in parts of Missouri, in Michigan, and in other localities, where the Cucumber is largely cultivated for pickling, a caterpillar is troublesome, which, from the fact that it was first noticed within Cucumbers after they had been preserved, has received the name, "Pickle-worm." As extended Melon culture made known the Melon-worm, so that of the Cucumber brought the Pickle-worm into prominence. It is a native insect, which, until comparatively recently, had been known only in cabinets. Though called Pickle-worm, it does not confine its attacks to the Cucumber, but feeds upon Melons also. The worm is variable in appearance, being translucent and yellowish-white, resembling in color that of the flesh of the Cucumber, on which it feeds. The length is about half an inch; the head is honey-yellow, and the rings of the worm are marked with black spots, each of which bears a fine hair. Like the Melon-worm, this makes its cocoons on the leaves, and undergoes its changes in about 10 days. The perfect insect is a moth, and belonging to the same genus as that of the Melon-worm. This is *Phacellura nitidalis*, which is described as being "of a yellowish-brown color, with an Iris-purple reflection." The body of the moth below is of a beautiful silvery-white; the end of the abdomen in the male, has a very large brush of flattened scales, some of which are whitish, others orange and brown; the smaller brush of the female is black. The treatment for this is the same as that for the Melon-worm.

Plants for Cold Frames.

The seeds to produce the plants of Cabbage, Cauliflower, and Lettuce, to be wintered in cold frames for the early crops of next spring, must be sown this month. Market gardeners find that the date of sowing is a matter of great importance. If sown too early, the plants may run to flower next spring; if too late, they will not be strong enough to winter well. The time best for one locality, will not answer for another, and allowance must be made for difference in the seasons. Near New York the 15th is the usual time of sowing; one successful gardener, with all his experience, does not trust to a single sowing, but makes two, one on the 12th, and another on the 16th. These dates may not be best for localities further inland, and each one must learn by experience, and the loss of a little seed, which is the best date for him.

Apples for Export.

From reliable sources we learn that the apple crop will be very poor in England this year, and not over-abundant on the continent of Europe. A short apple crop in England, means a demand for American fruit, to the profit, if not of our orchardists, at least to our shippers. In former years, American apples have met with a ready sale at paying prices in England, but within the last two or three years, the trade has been less profitable. It is the old story over again, that good fruit in good

condition, brings good prices. Two years ago, taking advantage of the unusual scarcity abroad, parties sent over large quanties of apples, without regard to their quality or condition. As a consequence, this fruit in Convent-garden market, as it would have been in Washington market, was left on the dealer's hands. Hundreds of barrels did not bring the cost of the freight, and American apples fell into disfavor. The same course, if followed this year, will meet with a similar result. Only the best fruit, packed in the best manner, will pay in England as at home. The English received their first impressions of American apples from the Newtown Pippin, which several years ago was the only kind sent abroad, and was in demand there, however large their own crop of fruit might be. But this variety is now far from abundant, and others have been forwarded of late years. The "Baldwin," "Greening," "Spitzenberg," "Northern Spy," "King of Thompkins Co.," etc., have sold well, when good of their kind. The rascally practice of "topping," has injured the reputation of our fruit, so at present, it is not bought by the appearance of the top layer, but the contents of the barrel are poured out for the inspection of the purchaser. Properly managed, the export of apples might be very profitable, and we hope that some method may be devised, by which a share of the profits may reach the grower of the fruit.

The Time for Planting an Orchard.

The discussions as to the most favorable time for tree planting, as a general thing, favor the autumn, but notwithstanding this, by far the greater number wait until spring. There are many points in favor of autumn planting in all the milder parts of the country. In the far northern localities, where winter sets in abruptly, spring planting is to be preferred. But as a general thing, our autumn is prolonged, the transition from summer to winter is very gradual, and we have then the most delightful weather of the whole year. At this time the soil is in the best condition for working, not having lost its genial warmth; not only can the work be done with greater comfort and more rapidity, but the soil is in the best condition to receive the roots. A tree is not a mere dead stick, to be set in the ground as if it were a post; it is still alive, though its vitality is not manifest; after the roots are placed in the soil, a certain growth takes place before winter. The wounds on the roots, made in taking up the tree, commence to repair damages, and often new fibres are formed, to be ready for active work by healing over in the coming spring.

In autumn, there is not in the nurseries so much of a rush of work as in spring, besides the stock has not been reduced by many sales, and the trees are likely to be better. One objection to purchasing the trees in fall made by some, is that the nurseryman, in order to fill his orders, must strip off the foliage. This has but little weight, if the nurseryman understands his business. In our mild autumns, when the leaves have done their work and have fully ripened—for leaves ripen as well as fruit—they will often remain attached to the tree for weeks, or until a severe storm shakes them off. When the leaves are in this state, they require very little force to separate them from the branches, and the stripping, if done at this time, can not injure the tree. The thorough planting of a tree requires that the soil should be in immediate, close contact with all the roots; no two roots should touch one another, but every root and root-fibre must be surrounded with earth, and no air-spaces left among them. This can not be done with a hoe or with the foot, but requires the hands to work the soil in among the small roots. At this time of the year the soil is in that genial condition that one does not hesitate to handle it and perform the work of placing the roots with thoroughness.

At this season, the planting of the tree should be finished by making a mound of earth a foot or more high around its base; let this be made steep and as smooth as possible. A mound of this kind serves several purposes: it greatly stiffens the tree and prevents injury by violent winds; it serves to protect the roots in severe weather, and if no rubbish is allowed to accumulate upon it, will keep off the mice, so often injurious to young trees. While a mound of this kind will generally avoid the use of stakes, there are localities in which, on account of violent winds, staking is necessary. When staking must be done, set the stakes first. Having made the proper excavation (not a mere *hole*) for the tree, drive down the stake, and then put the tree in position, arranging the roots upon each side of it. If the trees are planted, and the stakes driven afterwards, many of the roots will be bruised and broken, and the tree injured.

Disfigured Raspberry Canes.

One in working in a Raspberry plantation, especially after the leaves have fallen, will frequently find the canes disfigured by irregular longitudinal scars, as shown in figure 2. It is not rare for the stem to be broken off by the wind at this point. If such a stem be carefully examined by cutting it open, there will be found numerous pale yellowish eggs, placed somewhat diagonally across the pith, as at *b*; one of the eggs, somewhat magnified, is shown at *c*; this, upon its more rounded end, is marked with opaque granulations, a kind of roughening of the surface, more largely magnified at *d*. If these eggs are allowed to remain until next May, they will produce a brood of minute crickets. One of these is shown when full grown, in fig. 3. It is called the Snowy Tree-cricket (*Œcanthus niveus*). Its general color is a very delicate pale green, or greenish-white, and it has a peculiar semi-transparent appearance. During their young state the crickets are useful in destroying plant-lice and the eggs of other insects, but later, when they get their wings, which is early in July, they become destructive to plants. The Raspberry stem appears to be preferred as a place for its eggs, but in the absence of this, it will make use of the Blackberry, the Grape, and even the White Willow and Soft Maple. But the injury it causes by wounding the stems of various cultivated plants is but a part of the mischief it does. It will cut off the leaves of plants, it having been known to completely strip a young vine of its foliage in a single night. Worse still, it will cut the stems of the young grape clusters, and when the ground is found to be mysteriously strewn with green fruit, the work is probably due to this innocent looking little cricket. The chief remedy is to destroy the eggs; the punctured stems should be cut away, and these, as well as any that may have been broken off by the wind, etc., should be burned. The cricket itself will sometimes be seen when one is working among plants, especially among grape-vines, and though very lively, should be captured if possible. The stems of the Raspberry often show, more especially at the West than at the East, irregular gall-like swellings, like that represented in fig. 4. This is due to a borer, the larva of the small beetle shown in fig. 1, the natural size being indicated by the line at its side. It is called the Raspberry-borer and the Red-necked Bupestris (*Agrilus ruficollis*), its neck, or properly thorax, being red. Cutting and burning all such excrescences will keep the insect in check.

Fig. 1. THE RED-NECKED BUPESTRIS.

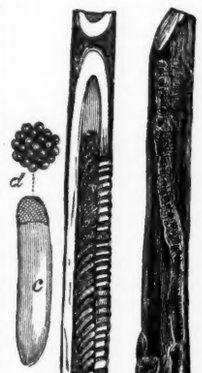


Fig. 2.—EGGS OF SNOWY TREE-CRICKET.

Spinach for Next Spring.

Spinach is to be found in the City markets all the year round, save in the hottest months. It is always in demand at a fair price, and is regarded,

Fig. 3.—SNOWY TREE-CRICKET.

in view of the little labor it requires, as a profitable crop. Singularly enough, spinach does not appear to be generally known among our farmers, either to grow for their own use, or as a crop to take to market. Especially those who are market farmers, and supply vegetables to a not very distant town, would find it to be easily raised, and to meet with a ready sale, especially in towns and villages where the population is largely European. The spinach, to be marketed in early spring, must have the seeds sown this month. It may follow onions, early cabbages, potatoes, or any other early crop. Give a good dressing of stable manure, or its equivalent in some artificial fertilizer; make the soil fine, as for a root crop, and sow the seed in drills 15 inches apart. It is customary to sow thickly, using 10 lbs. or more of seed to the acre. Near New York, the sowing is done from the first to the middle of this month, following with a roller, or if this is not at hand, the gardener's ready substitute, the feet, passing over the rows and treading them down, to bring the soil in close contact with the seed. The catalogues often recommend the Prickly-seeded variety as best for fall sowing, but we have not found it preferable to the Round-seeded. Usually the plants will be large enough to allow of thinning before winter sets in, and a supply for use or for sale, may be had from the thinnings which should be cut out where the plants stand thickest. In very cold localities, the spinach should have a thin covering of straw, leaves, or other litter, but this is not usually done near the coast, though even there, a slight covering preserves the leaves in better condition. In spring the soil is loosened between the rows, and the plants soon start into growth; when new leaves are formed in the center of the plant, the crop may be cut for use or for sale.

Fig. 4.—GALLS IN CANE.

The Strawberry Bed.

Those who followed the instructions given in July last, and made a strawberry-bed last month with pot-layered plants, are sure of a good crop next spring, unless some accident prevents. Good results may be expected from a bed made the present month (September,) but the sooner the work is done, the better. Those who have not pot-layered the plants themselves, can procure them of all the principal nurserymen, who now propagate in this manner a supply of plants of the leading varieties. Of course they cost more than the ordinary plants, but many are willing to go to the extra expense, if they can only be sure of a crop of fruit a year sooner than they could have it in any other manner. Those who raise fruit for market, do not need to be told that good strawberries can only be raised on good soil. In private gardens the plants are rarely properly fertilized. Well decomposed manure is best, and a liberal coating, three inches thick is none too much, should be spread over the surface and spaded in. In the absence of manure, a good dressing of some of the artificial fertilizers may be

used instead. The plants may be set in rows two feet apart, and 18 inches distant in the rows. Some put them only a foot apart in the rows, but in rich soil this does not give space enough. In setting, the ball of earth is turned out of the pot, and put in its place in the bed, without disturbing its roots. At the time of planting, pinch off any runners that may be forming upon the plants. During the growing season, keep the bed clean by use of the hoe, and remove all runners as they appear. The plants thus treated will form fine large stools by the time cool weather checks their growth.

Picking Fruit—Fruit Ladders.

The first step towards getting the best prices for fruit must be made in the picking. The old method of shaking or thrashing the tree will answer when the fruit is shovelled into a wagon body and carried for several miles over a rough road. This is not the method of marketing apples to get the best prices. Early apples are often more profitable than the later varieties; as a general thing they are more

A GOOD FRUIT LADDER.

tender, and can only be profitably sold in markets near at hand. After they have reached maturity—have made their full growth—they soon become mellow and quickly decay. Hence the orchardist should be familiar with the time of ripening of each variety, and be ready to pick it in its proper condition. The best packages for early apples are either half barrels or bushel crates. We gave in August last (page 324) the method of making a crate of the proper size to hold a bushel. Whether the fruit is packed in half barrels or in crates, both should be new, and so filled that some pressure will be required to bring the head of the half barrel, or the cover of the crate, into place, in order to prevent any shaking in transportation. But the first step in marketing the fruit, is to pick it properly. Ordinary ladders that rest against the trunk of the tree, help; but the best specimens grow on the outside of the tree, upon the extremities of the branches, where they are exposed to the sun. The fruit growing in these places cannot be readily reached by the ordinary forms of ladders. A step-ladder is often used, but this is not so convenient as the kind used by painters. This is made of two parts, as shown in the engraving. When opened, it stands firmly, and may be used as a step-ladder. Ordinarily, it will be found best to have two ladders of this kind, and by placing a board from one to the other, a platform may be formed, higher or lower, from which the exterior portions of moderate sized trees can be reached, and greatly reduce the labor of fruit-gathering. The picker should have such a receptacle for the fruit that will allow him to deposit it without bruising, and leave both hands free. A basket hung to a strap which passes over the shoulders, is convenient. A grain bag may be slung over the shoulders, with the mouth kept open by a stick, in such a manner as to be convenient for the picker. In packing the fruit, make sure that it is of even quality throughout the crate, etc., and mark the name of both the consignee and shipper plainly upon the package.

Successful Culture of White Pine.

Were it generally known that it did not require several lifetimes in order to raise a profitable forest, one great obstacle to tree culture would be removed. We have cited the rapid growth of birches and elms on our place as examples of trees of a size to be useful, growing in 12 years from the seed. Our correspondent "A. L. J.," Cheshire Co., N. H., gives us his experience in raising a White Pine grove. About 30 years ago, having a lot of about three acres which could be devoted to the purpose, he cleared the land. On a "bearing year" of the pine trees, he collected about 12 bushels of the cones in the early part of September. These he scattered over the land without giving it any preparation, with the result of thoroughly seeding it. We do not commend this rude culture, but it is interesting that success followed it. Mr. J. says:

"The next year the little pines appeared by the million. They grew the first season about two inches high; the following season they made a growth of from one half to three-fourths of an inch; the next year they grew about three inches, and the year following about one foot. In the next 13 years they grew over 30 feet. These trees now measure in hight, by estimate, about 45 feet, the larger ones being about 18 inches through at the base. Cattle were not allowed to run in the lot for 12 years after sowing. At that time I thinned them out so as to give the best a chance to grow, trimmed up those left standing to the hight of three or four feet, taking off all the dead limbs.

"I have trimmed the trees in the lot and thinned them out from time to time, in order to give the best specimens a chance to grow. The trees are now free from branches to the hight of about 23 feet. Trimming has usually been done between the first of November and first of February. But few live limbs have been removed, except to give a tree a better appearance, I have sometimes taken one off. The wounds have always healed over perfectly. The new wood growing close over the knot and making clear timber of all that grew outside of where the branch was cut off."

A Cheap Ice-House.

The amount of ice used increases every year, and this is largely owing to the ease and cheapness with which it can be kept. Ice becomes a neces

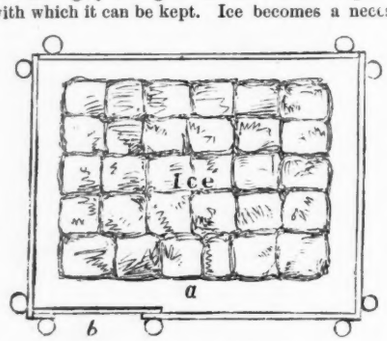


Fig. 1.—PLAN OF ICE-HOUSE.

sity in many cases so soon as its value is known by experience. The gain in the quality and price of dairy products by using ice many times repays its cost, and in the preserving of meats and other articles of food its value is beyond computation. An ice-house is not an expensive building, and is within the reach of nearly every farmer. The accompanying engravings show the form of a cheap ice-house, that can be built at only a small outlay for materials, and with but little labor. The dimensions will depend upon the amount of ice desired and the length of the boards to be used. Nine posts of suitable hight are set, two at each corner, as shown in fig. 1; the ninth post is put on the front and at one side of the doorway. The front posts are a foot or more longer than the rear ones,

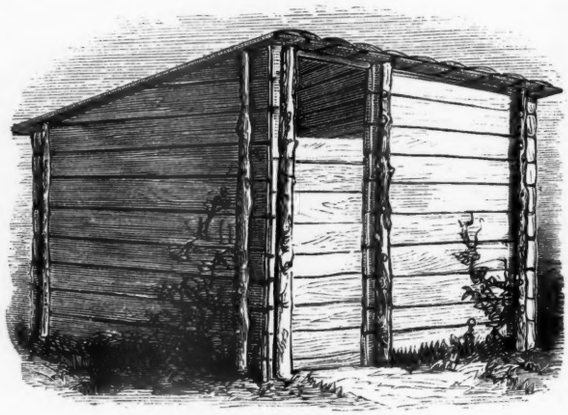
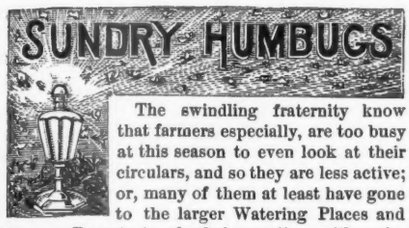


Fig. 2.—THE ICE-HOUSE COMPLETE.

to provide for a slanting roof; the tops are held in place by light scantling. The plank or boards are nailed to the posts with cleats to secure them to each other at the ends. A layer of six inches of saw-dust or cut hay is spread upon the ground before the first tier of ice is put into the house. The ice should not come within a foot of the wall, and fill the space between *a* with the saw-dust or other packing material. The plank wall and the ice tiers may be carried up together until the house is filled. A door, *b*, is made by using two lengths of plank on the front side, the short ones being so placed that they can be removed as the ice is taken out. A thick layer of packing material should be put upon the ice after the house is filled. A roof of slabs or any other material that will keep out the rain is sufficient. The ice-house complete is shown in figure 2. It is hoped that farmers and others who have need of ice throughout the hot summer months will construct an ice-house before winter comes and fill it during the ice harvest. Ice is one of the crops that must be gathered in its season.

"Army Worms Eggs."—"J. W. G."—Mattituck, L. I., sends us specimens of what he takes to be the eggs of the Army-worm. He wishes to know about these eggs, and what kind of an insect will be hatched from them. The specimens sent, though white and egg-shaped, are not eggs at all, but are the cocoons of some insect, probably an Ichneumon-fly, which is a parasite of the Army-worm. It is fortunate for cultivators that the destructive insects have their insect enemies, to keep them in check. A common example is seen in the large green caterpillar known as the Potato-worm, or Tomato-worm (*Sphinx quinquemaculata*), the body of which is often completely covered with the small, white cocoons of the parasite. The parent fly deposits great numbers of eggs in the soft body of the caterpillar; the larvæ or maggots soon hatch out and live within and upon the substance of the caterpillar, but avoiding any vital parts. The caterpillar feeds and barely keeps alive, as it has to support a large number of its unwelcome guests. When these insects within an insect have completed their growth, they come to the surface of the caterpillar and there spin their pure-white cocoons, from which in due time the perfect insect comes forth. The caterpillar keeps barely alive all the while, but is so much enfeebled that it cannot com-

plete its own changes. What occurs with this caterpillar of the potato or tomato, takes place with other caterpillars, and the supposed eggs of the Army-worm are the cocoons of its parasite. Were it not that we are aided in our fight against destructive insects by other insects, we should fare poorly. Whenever a caterpillar, of any kind, is found with these supposed eggs upon it, do not destroy it. Whatever mischief it can do, in its disabled condition, will be more than offset by the benefit that may result from the parasite.



The swindling fraternity know that farmers especially, are too busy at this season to even look at their circulars, and so they are less active; or, many of them at least have gone to the larger Watering Places and Summer Resorts to ply their vocation, with variations, among a different class of victims. There are several operators in the agricultural districts with some new-fangled attachments to harvesting and other implements, but our readers are too much engaged to stop to furnish particulars.

The Peach-Growing Districts.

A few years ago, at harvest time, we were in the peach-growing counties of Delaware and Maryland, and saw how the growers were daily visited by those who professed to offer special advantages to shippers of peaches, and made all sorts of tempting offers and promises. On coming to the city, we found that these parties were not known among the regular commission dealers, not even having a place of business. They do a sort of side-walk trade, and when wanted cannot be found. We advise peach-growers to stick to well-known commission men, and not trust to transient fellows, no matter how large a commission they may offer.

Gambling in Grain.

A year or more ago we showed up the bogus stock-brokers who offered great inducements to persons at a distance, to engage through them in operations on Wall Street. There are parties in Chicago who are constantly offering similar inducements to engage in gambling on the price of grain. A subscriber in Ohio sends us the circulars of one of these, which proposes to form

"Mutual Investment Clubs,"

and asks if it will be safe for him to invest. In Texas they have an adage, "Never play at a game you do not understand." We have read through these circulars carefully, and fail to understand them. The concern professes to operate clubs, and asks people to subscribe for shares at $10 up to $1,000, offering a very large profit, in some cases as much as $5.10 on a $10-share in less than two months. We can only say that Chicago is a very wide-awake business place, and were there any such profits possible or probable, there would be no need of sending to Ohio farmers to solicit subscriptions. Any scheme that offers such profits need not go a-begging outside of Chicago, or any other business place, and all the money expended on circulars, reports of "The Profits of Club 13," and the rest of it, might be saved.

Medical Matters.

As usual, a large share of our inquiries relate to these. Here comes from Iowa an inquiry from "A Subscriber" about a "Metaphysical University." We had often seen a sign bearing that legend on a house in a street not far from our office, and had often wondered what it could be. For an obscure brick tenement to call itself a University was odd enough, but to be a "Metaphysical University," was quite beyond our comprehension. "Metaphysical" is a big sounding name, but if one looks it up in the Dictionary, he will not get a very satisfactory definition. He will find, in brief, that metaphysics is the science of the mind. Our Ohio friend's wife was troubled, not as to her mind, but as to her body, and he writes that as this metaphysical shop has drawn from his wife about $150, and the investment has not done her the slightest good, he wishes us to save other poor unfortunate victims by exposing

The Metaphysical University

as a humbug. We should think that its ridiculous name would proclaim it as such; but there are people everywhere who need to be assured that those shops who advertise themselves at a distance as "Universities," "Colleges," "Institutes," and the like, as located in New York City, when found will be obscure buildings upon some side street.

A correspondent sends a paper published in a Western city which contains a displayed advertisement a column long,

Of an Entirely New "Trust Company."

It proposes an "innovation" upon the old style of doing business, and claims to give "an opportunity to realize a Handsome Dividend on a comparatively small sum in a very short time." All that we thus far know of this Trust Company is from this advertisement, and we can only say to the friend who asks about investing in it, that this is of a character to suggest the exercise of great caution. There is altogether too much flourish of trumpets and too many vague generalities, to impress one favorably. We should take nothing on "trust," even in this "Trust Company," but examine carefully.

An Electric Chair

is the latest thing in the way of electricity. Of course this is, according to its inventor, the only real medium for applying electricity. He heads his advertisement with "Edison Outdone," in large letters, which shows him to be a modest man. He says: "We have established ourself in Indianapolis as the original, genuine, and only true, sovereign, electrical cure for the most vile, loathsome, and life-destroying diseases that afflict humanity"—which is rather the reverse of complimentary to the inhabitants of that prosperous city. Whether this electric furniture is for family use, or only for the "doctor's" office, the advertisement does'nt say.

Gambling With Needles.

In an old-fashioned game with pins, money could be lost and won, and now we have needles made the medium or reason for a lottery or distribution, as we take it to be. The circular says that any person paying $1.00 for 10 papers of the needles, "will receive ALSO ONE of the articles NAMED BELOW." These articles are sewing machines at $65, pianos at $300, gold watches at $65, and other valuable articles; but there are also 5,000 steel engravings, valued at $1.00 each, and the chances are that "one of the articles" will be one of these engravings. If these steel engravings are valued at only $1.00 for advertising purposes, what can be the real value? This is rather thin for Philadelphia.

A Great Improvement in Cotton.

The wonders of plant life are by no means confined to the cooler regions of the north, where self-pruning grape-vines, strawberries which grow on shrubs like raspberries, and peaches that are, by being budded (or grafted, we have forgotten which) on the French Willow, free from yellows, and all other diseases, are offered to the credulous. Now that most valuable plant, the Cotton, presents itself in new and remarkable forms. In August, 1881, upon the authority of a United States official, we informed our many readers in the cotton-growing States against a so-called

"Worm-Proof Hybrid Cotton,"

the seeds of which were being sold in Louisiana at 30 cents each, but less by the dozen. It was claimed that this cotton was the result of a hybrid between common cotton and "a weed which no worm or bug would touch." On general principles we pronounced this "Worm-Proof Hybrid Cotton" to be a thing to be avoided. We were threatened by this weed and cotton hybridizer with a suit for damages, and a lady wrote us a long and very—well, say earnest—letter about our being opposed to improvement in the South. Thus far we have not been called into court for the alleged libel. But this "Worm-Proof Hybrid Cotton" is nothing to

Another "Hybrid Cotton,"

which is at once so much more hybrid and so much more cotton than the Louisiana thing, that that should retire from the field at once. A subscriber in Texas sends us the circular of this cotton, and asks us for information about it. This new cotton is not a product of Louisiana, but of Georgia. We are told: "It was produced by hybridization of the wild cotton which grows along the low lands and banks of the Caloosahatchie river in Florida, with the common okra of our vegetable gardens." The cotton and the okra belong to the same natural order of plants, and while we can not say that they will not hybridize, we do not believe that they will. It is likely that cotton has escaped from cultivation in some parts of Florida, but why start with this half wild plant? Where is the Caloosahatchie river? It can not be a very important stream, as neither of our three Gazetteers mention it. But to this

Wonderful Cotton Plant,

the account of which will be so interesting to our many readers in the cotton-growing States, that we give it in full. This is not from the announcement of one who has seeds to sell, but, strangely enough, from an editorial in a Georgia paper. We read:

"It grows to the hight of two feet and has one beautiful bloom at the top, which resembles the magnolia flower in appearance, size, and odor. The blooms remain white for two days, and then, beginning with a delicate pink, gradually change to a dark red, when they drop off, and then appears a most wonderful boll. For a week this boll resembles that of the ordinary cotton, and then continues to grow until it reaches the size of a gallon tin bucket.

"The lint then begins to grow, but is held in place by the long, okra-like points. When fully matured, more of it can be picked by a common hand in one day than six hands can pick of ordinary cotton.

"The lint has no seed, and hence the ginning is dispensed with. The bolls produce from one and a half to two pounds of fine, long staple cotton. In the bottom of the boll from four to six seed resembling persimmon seed are found."

There you have it! Such wonderful flowers which, so to speak, "knock the spots out of" either okra or cotton! But what is the flower to the fruit—What are the miserable common bolls to one "the size of a gallon tin bucket!" We always like definite descriptions, and are glad that the gallon bucket is a "tin" one! When one describes such remarkable plants, he should not go too closely into particulars. We are told that

"The Lint Has No Seed."

But in all cotton heretofore known, the lint is an appendage to the seed, provided by nature for some wise purpose, and none ever before grew, except as an attachment to the seed. When we are asked to believe that a plant will produce a "gallon tin bucket" full of lint just for the fun of it, we are provoked to say, Bosh! A Georgia paper says: "If what is claimed for it is true, it will paralyze the cotton-gin business, and make our planters become bonanza kings." We say to our Georgia friends, *if* you have a gin, keep it in good order, and don't sell it for old iron this year. *If* you can become "bonanza kings" by growing this wonderful cotton, do it, but go slow; try a few seeds first—*if* at all. We have no doubt that improvements will be made in the cotton plant, but they will not be in "gallon tin buckets" of lint without seeds.

Remarkable Watch Cases.

Sometimes we get an inside view of things in an unexpected manner. There is a chap in a neighboring city who advertises watches very loudly. It comes in our way to know that this person, who announces his watches in such glowing terms, has written to a well known manufacturer of watch cases, to inquire at what price he can be supplied with watch cases, "not more than 3 K. fine, and not more than 1 oz. weight—in fact, just as cheap as they can be possibly gotten up." By the term "3 K. fine," it is understood by those in the trade that the cases shall contain 3 parts of gold in 24, or be *one-eighth* real gold. An alloy of this kind, having the base metal dissolved out of its surface by acids, shows a thin superficial film of gold, but this will soon wear off, and expose the miserable alloy below. Then to read that the cases are to be "just as cheap as they can be possibly gotten up," is a wonderful falling off from the description of the same cases, when the watches they are to hold are advertised for sale all over the country, in any paper that will publish the deceptive advertisement.

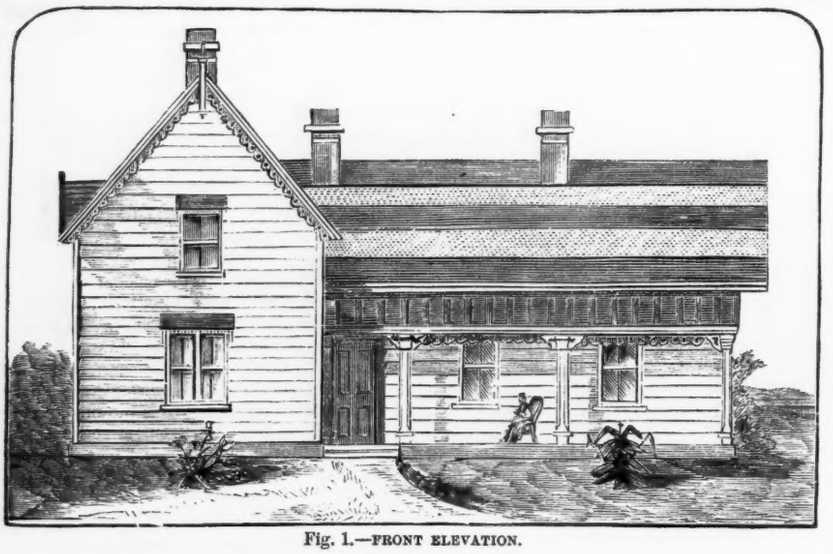


Fig. 1.—FRONT ELEVATION.

Prairie Cottage, Costing $800 to $1,000.

Cost, as here Described, $900.

CLASS I.—3d PRIZE.—BY JNO. DUNLOP, SOZORRA, ONT.

Though called by the designer a "Prairie Cottage," this house is adapted, as a whole, to many other rural localities, and furnishes suggestions for any farm house or other residence. The truth is, no one plan is likely to be exactly suited to the wants, wishes, or tastes of any family; yet no one can carefully examine any plan without deriving some hints to be adopted or improved upon. Any person intending to erect a dwelling, whether to cost $500, or $5,000, or more, should get two or three books on the subject and read them carefully. The chances are, a thousand to one, that in so doing, he will get information and primary or secondary ideas that will many-fold repay the simple cost of the books. Reed's "House Plans for Everybody," and such like books, are of the kind referred to.—Mr. Dunlop writes essentially as follows, the manuscript accompanying the drawings:

The prices of the materials are quotations from the current rates in Cass County, Dakota, in 1881.—

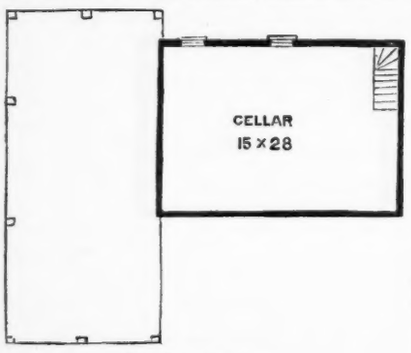


Fig. 3.—BASEMENT.

The accommodations are sufficient for a small family, with one room for hired help.—**Exterior** (figs. 1 and 2).—The foundations show 18 inches above the graded earth, which is raised to slope from the house outward, with soil taken from the cellar. The hight of the building is kept low, the better to withstand the strong winds that sweep over the treeless prairies. The Veranda, having a southern exposure, will be a comfortable resting place during hot sunshine, and help keep the house cool.—The CELLAR (fig. 3) excavations are so made that the hight of ceiling above will not be less than 6 feet. It extends under the one-story part of the building, and has two windows for light, the entrance being from the scullery.—

Ground Floor (fig. 4).—Hight of ceiling of the one-story part, 8 feet; of the two-story part, 9 feet. It contains a Parlor, Dining Room, Hall, Kitchen, Scullery, Bedroom, Pantry, and a closet under stairway. Six-inch thimbles are placed in the flues, 2 feet under the ceilings, and through the partitions where necessary. The pantry and closet are furnished with shelves. The chimney flues are built of brick, placed on brackets, 3 feet under ceilings of upper flats.

Second Story (fig. 5).—Hight of ceiling, 8 feet. The throat-ties are carried up the joists 2 feet, thus concealing the sides of walls to that extent. This story contains 3 bedrooms and a hall.

Construction.—The cellar walls are of rubble stone, foundation pillars and chimneys of brick; plastering, three coats. The frame of sawed pine, thoroughly fitted and braced; the side studding extends from sills to plates. The roof and side walls (outside) are covered with inch lumber; outside walls finished with lap-siding over the lumber; inside walls with lath and plaster. Roof of Veranda covered with ship-lap, and battens over joints. The flooring inside is tongued-and-grooved pine. Flooring of Veranda, common lumber, jointed. The inside wood-work is finished in seasoned pine. The exterior is painted two coats of slate or gray color. The prices estimated at rates as laid down at nearest station.

Estimate of Cost.

Excavating 93 yards, @ 20c		$18.60
630 ft. Stone-work, @ 10c		63.00
800 Bricks, @ $12		9.60
535 yards Plastering, @ 25c		133.75
Sills and Plate, 16 by 6 by 2	516	
Stringers, 64 by 6 by 1	32	
193 Studs, Spars, and Ties, 16 by 6 by 2	3,168	
74 Joists, 16 by 8 by 2	1,580	
106 Studs, 16 by 4 by 2	1,450	
25 Ties, 14 by 6 by 2	350	
Total	7,096 ft., @ 18c.	127.70
2,000 ft. Roof Sheeting—2,000 ft. Wall Sheeting, @ 15c.		60.00
2,000 ft. Lap-Siding, @ 26c		52.00
18,000 Shingles, @ $3.00		54.00
50 ft. Tin Valleys, @ 9c		4.50
1,300 ft. Flooring, @ 32c		42.00
Skirtings, $7.50—Lath, $15.00		22.50
2 Outside Doors, @ $5.00		10.00
10 Inner Doors, @ $4.00		40.00
15 Windows, at $4.00		60.00
2 Cellar Windows, @ $3.00 each		6.00
Veranda, $30—Painting, $20		50.00
Carpenter Work, extra		100.00
Incidentals		46.35
Total		$900.00

Chicken Raising.—"Mrs. A. W." writes us: "Many persons, in giving directions for the care of young chickens, say, 'give no water for six or eight weeks.' This would be extremely cruel to the hen-mother, for hens are very thirsty fowls, and will not do well unless they have plenty of drinking water. Of course milk is better for both hen and chicks. I have raised a good many chickens, and do not think I ever lost one, and yet I have always given them water, which they will drink when very small. In my experience, wheat screenings have proved to be excellent feed for them, with corn-meal given occasionally. Bread and rice, as recommended by some poultry raisers, must be very expensive food for chickens."

High Prices for Hops.

Articles and items with the above or similar heading were, about the first of August, quite frequently met with in the daily papers. These embodied the statements that the hop crop of Great Britain was a failure, and that sales had already been made of American hops at prices about double of those made two months earlier. We regret to see these unqualified statements, as their effect upon the farming community is disastrous. Having witnessed two Hop "booms," as the phrase of the day has it, we do not care to see another. The last was some 12 years ago, in which the farmers in some localities, in the desire to become suddenly rich, had planted such extensive hop-yards, that they could only get the crop picked by bringing in the scum of distant cities, and when they were harvested, the hops would not sell for the cost of producing them. Before the high prices already paid, and the still higher ones likely to be paid for hops, have had their effect, and have induced many of our readers to undertake hop-growing, we would ask them to consider a few points which the flattering accounts of successful hop-growing altogether omit. There are several crops which, for want of a better name, we have in former years called "Speculative Crops." These are crops outside of any regular system of farming, their products having no relation to any of the usual products of the farm. These crops, usually produced at a large expenditure of the ordinary stock of manure, must be sold off at current rates; the farmer can not usually afford to keep them for a higher market, and they can not, as a general thing, be consumed on the farm, either by the farmer's family or by his animals.

Among crops of this speculative class we include Onions, Tobacco, Broom-corn, Castor-oil Beans, Teasels, Peppermint, and Hops; to some extent Flax, at least when grown for its seed only, belongs

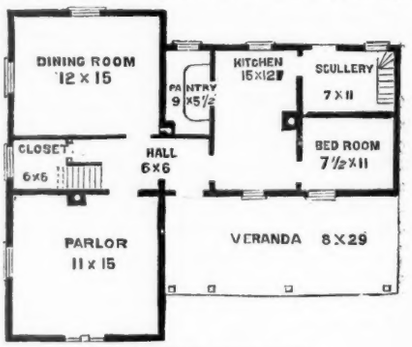


Fig. 4.—FIRST STORY PLAN.

in this class. All of these crops have proved, and in the future will no doubt prove highly profitable—under certain conditions. We have termed these "speculative crops," in part for the reason that their products being limited, and the quantity raised being readily known to operators in the markets, they are made use of by speculative dealers, who, by controlling the market, can suddenly raise the price, and holding the whole stock, get any sum they choose to ask. Whenever high prices are quoted for these products, recollect that these high prices do not go to the farmer who produces, but to the speculator who sells them.

Each of these crops has its peculiarities which makes it difficult for the average farmer to produce it; this is especially the case with Tobacco, which requires large houses in which to properly cure it, and with Peppermint. Here the crop has not only to be raised, but it must be manufactured, as it is only marketable in the shape of Oil of Peppermint. This involves considerable outlay for apparatus, which is useful for nothing else, and its proper use requires a kind of skill which farmers, and indeed people in general, have not had occasion to acquire. But let us take the Hop crop, which is at times very profitable. This is a crop, the demand for which, though large, is limited; if it fails in a large hop-growing country, as in England the present

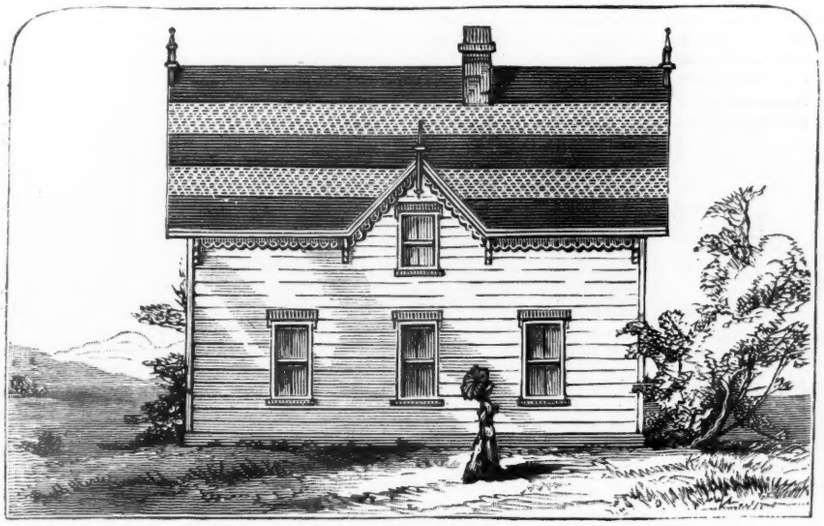


Fig. 2.—SIDE ELEVATION.

year, the price at once doubles, and by the time the next year's crop is on the market, the price may be quadruple that of the average. Under these conditions the enterprising American farmer feels that he is safe in establishing a hop-yard, and in doing this at a considerable outlay. Here one of the peculiarities of the crop is, that after the plantation has been made, the vines must grow for *a whole year* before any returns can be had. In this year, which his plantation must have in order to become productive, the countries which failed the year before may have abundant crops, and before he has harvested a single bale, the price may fall to the average or below it. Aside from the marked fluctuation of prices, there are other difficulties attending the hop crop. The need of pickers has already been alluded to. The fact that there must be at hand an abundance of cheap labor at just the right time, makes hop-growing in sparsely settled localities difficult, if not unprofitable. In some seasons, and in particular localities, there appear hordes of insects that must be fought vigorously to save the crop. After the hops are raised and picked, they are not marketable unless properly cured and baled. This calls for peculiar kilns, buildings put up for the express purpose, and upon careful treatment in the curing largely depends the quality, and consequently the price.

"Then," some will say, "you advise the American farmer not to grow hops?"—By no means. So far from this, we several years ago offered premiums for Essays upon Hop Culture, if not to advocate it, at least to furnish a reliable guide to those who would undertake it. The object of this article is not to deter farmers from growing hops, but to prevent their taking up the culture inconsiderately, impelled thereto by a sudden rise in the market. Our farmers—some of them—can make money by growing hops—all can not. Let whoever is attracted to hop-growing by present high prices, consider the matter in the light we have presented. Let him make sure that his soil and surroundings are suitable for the crop, and if he can afford to wait a year after planting, buy the needed poles and put up kilns, and be at all other outlays before he can receive any returns. If he finds that he can add a hop-field to his regular farm, then let him do so—making up his mind, if he goes into this special culture, to *stay in*. If he will be discouraged by one, two, or more bad years, let him keep out. We have no doubt that, properly pursued for, say ten years, it will in the long run be found profitable, sometimes very profitable. What we suggest as to hops, applies to all special cultures. They may be made profitable if intelligently started and persistently carried on, taking the bad years with the good. If one is unable to do this, let him stick to the regular farm crops.

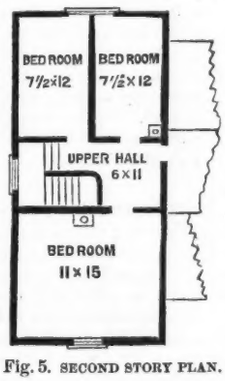


Fig. 5. SECOND STORY PLAN.

Canning Tomatoes.

In a recent number of the *American Agriculturist* I read some remarks regarding the preserving of tomatoes, and a lack of success. The *modus operandi* is very simple, and why the many who fail do not succeed, I cannot understand. The main point to look after is the jar. It is of no use to put tomatoes into a jar that is not *perfect* throughout. Many persons, after using the contents, and cleaning the jar, set it upon a shelf, and the covers are put into a box or other receptacle, and after being *jumbled* together for several months, it would be surprising if the covers, and especially the glass ones, came out whole; a small nick out of the sealing edge of a glass cover will cause the fruit in that jar to spoil.

I have seen persons use rubbers that had been in use for years, and were so stiff and hard that they would not stretch; such rubbers are useless. A good rubber should be soft and pliable. The tomatoes should be thoroughly cooked. My way is to stew them in a large kettle, all at once. Take your jar, set it on a cloth wet in cold water, pour in enough cold water to cover the bottom well, then fill up with boiling water. As soon as the jar is thoroughly hot, empty the water, and fill at once with the hot tomatoes, brimming full, then put on the rubber. Be very careful that no seeds get under it; put on the cover, and screw down. If a glass top, it should be warmed the same as the jar; continue screwing down the cap as the jar cools. If done carefully and quickly, success *will* follow. Many people fill their jars too slowly, giving too much chance for the cold air to get in, and the fruit to cool. These remarks will apply to the canning of any kind of fruit.

Peaches I can differently. I pare my peaches, taking care that they are in good condition, ripe, but not mellow, put in as many whole ones as I can, and pack all round the sides with halves and quarters as close and tight as I can, without bruising; then I put in 7 ounces of sugar, and fill up with water. Put on the fire a kettle with cold water, set these jars that have been filled in it, keeping them off the bottom by a grating or something similar, and so they will not touch each other; put on the covers, and screw the ring down a little (but not the rubbers). After boiling hard for ten minutes, take out and fill up with boiling water, put on rubbers, and seal as above. People say my peaches are very nice. H. B. C.

The Ailanthus Tree.

After being yearly abused in the journals, especially by those of New York City, the Ailanthus tree has at last found an advocate in one of the New York Daily papers. In its issue of July 26th last, it had an article on the tree, which differs from the majority of those in the daily papers on such subjects, as it plainly indicated that "the writer had some knowledge of the subject." This article mentioned the great defect of the Ailanthus, its odor during its time of bloom, whereupon a correspondent sends a note, published in the same paper on July 29th, which says: "There are assuredly more kinds than one of this tree. On my place on the Passaic River, near Belleville, are some half a dozen large Ailanthus trees, the branches of some of which reach within twenty feet of my bedroom window. Every year they are filled with blossoms perfectly inodorous, and subsequently heavily freighted with immense bunches of seed of a rich red-brown color. Further away are four large trees precisely similar, except that the seeds are yellow. None of them are in the least offensive when in blossom—unlike all others I have ever seen." We quote this, as it brings up a matter regarding the tree not generally understood. It has often been stated that the Ailanthus bears its staminate and pistillate flowers upon different trees; that the staminate flowers are the ones which give off the disagreeable odor at flowering time, and one has only to plant the pistillate, or fruit-bearing trees, to be freed from the unpleasant smell. Unfortunately this is not true. The flowers of the Ailanthus are of three different sorts; there are: 1st, flowers with stamens only; 2nd, flowers that have both stamens and pistils, as do the majority of our common flowers; 3rd, flowers that produce only pistils. The first two kinds have stamens and are odorous. The second and third have pistils and produce fruit. The second kind produces fruit abundantly, but it also has the offensive stamens, and it will be seen that the fact that a tree has its showy fruit-clusters, is no assurance that it will be inoffensive. It is the third kind only, the flowers of which have pistils solely, can be relied upon as inodorous. Plants which present this irregularity are called polygamous. It is only when trees, like those of the writer of the above note, are found to be without offensive odor, that we can be sure of the matter. While we can not assert that a tree of this kind, one with pistillate flowers, will always continue to bear such, yet from analogy we judge that it is highly probable that it will. To avoid the chief objection to the Ailanthus as a street tree, and to its planting near dwellings, we must propagate not only from those individuals which show their ornamental clusters of fruit, but which at the time of blooming are also without odor. The tree is propagated with great ease from cuttings of the root. When an inodorous tree is found, it is not necessary to destroy it to propagate it. A share of the smaller roots, from an inch down to a fourth of an inch in diameter, may be taken off in fall, without essential injury to the tree. These pieces cut into lengths of two or three inches, and placed in a well prepared bed, will nearly all make small trees the next season. The Ailanthus is valuable for timber, and as fuel, and beautiful as an ornamental tree; it will flourish in the poorest soils, and grow rapidly under the most adverse circumstances. In real value it takes a high rank, and it is desirable that every effort should be made to avoid its only unpleasant feature.

Blanc Mange is an acceptable addition to the supper table, and easily made. Take a handful of Irish Moss, wash thoroughly in several waters, add a few pieces of stick cinnamon, and tie up loosely in a piece of mosquito netting. Boil about fifteen minutes in 1 quart of milk; turn the milk into a mould or bowl previously wet with cold water; let it stand until cold. When ready for use, turn it out upon a dish. If boiled enough, it will keep its form. Eat with sugar and cream. The moss is very cheap, and if properly washed is free from all unpleasant taste. A. W.

Insects Within the Potato Stalks.

The injuries inflicted by the Colorado Potato-beetle, by general consent regarded as "*The* Potato-bug," are so extensive and thorough, that those due to other insects are in a great measure overlooked. There are several insects that, in the absence of the Colorado-beetle, would cause potato-growers much anxiety for the safety of their crops. Among these are two which confine themselves to the interior of the stalk or vine of the Potato; here they live and make their growth, and by the time this is completed, the stalk is dead. Both these stalk-infesting insects are more abundant in the Western and Southern than in the Northern and Eastern States, but we have an example in the one from Colorado, of what a potato-insect can do if it undertakes to travel, and no locality can be regarded as safe from insect invasion, unless climatic conditions prevent.

The Potato-Stalk Borer

is the larva of a moth (*Gortyna nitela*). The moths are so numerous that entomologists find it convenient to divide them up into families, and this insect belongs to the Owlet Moths (*Noctuideæ*), which are distinguished, among other characters, by their rapid flight at night; they are attracted by a light, and we are apt to have many species enter the house and present themselves to our notice. The Corn-worm, the destructive Army-worm, and the several Cut-worms, are all too well known larval states of moths of this family. Though called the Potato-stalk Borer, the parent moth does not confine herself to the Potato in laying her eggs; she also deposits them upon the related Tomato, as well as on the Dahlia, the Aster, Lily, Salvia, and other garden flowers, and has been known to do so on Indian Corn, and even on the stems of the Peach and Currant. Being a native insect, it attacks several wild plants, especially the common Cocklebur (*Xanthium*), which is quite too abundant from East to West. The immature larva or borer and the moth are shown in figure 1. The larva, of a livid hue when young, and lighter colored when mature, lives in the stalks of the Potato and other plants, leaving them usually the latter part of July, and descending to a short distance below the surface of the ground, forms its chrysalis some time during September; it is of a mouse-gray color, the front wings finely sprinkled with pale yellow, with a curved pale line across them. There are good reasons for supposing that the insect passes the winter in the perfect or moth state, hiding away and becoming torpid, only arousing with the warmth of April and May, to lay its eggs upon the stems of the Potato and other plants. When the borer is suspected to be within the stem of the Dahlia and other flower plants,

Fig. 1.—MOTH AND LARVA OF THE POTATO-STALK BORER.

from their wilting, a close examination will show where it entered, and it may often be cut out and the plant saved. In the potato-field its presence may be detected by the wilting of the vine, and such stems should be cut off and burned, to prevent the spread of the insect. Another insect attacks the Potato in a similar manner, but belongs to a different order of insects.

The Potato-Stalk Weevil

is a small beetle (*Baridius trinotatus*), shown in its perfect state at *c*, fig. 2, the line at the side indicating the real size. Its general color is bluish or ash-gray, with three indented, black spots on the lower edge of the thorax. The female makes a slit in the stalk with her beak, and deposits in this a single egg. The grub is soon hatched, making its way to the center of the stalk, and working downwards towards the root. The grub, when full grown, is but a little over a fourth of an inch long, whitish, and legless; it is shown at *a*, enlarged. The absence of legs distinguishes it from the Stalk-borer just mentioned. It also differs from that in not leaving the plant to form a chrysalis in the ground, but becomes a pupa within the

Fig. 2.—THE POTATO-STALK WEEVIL.
a, Larva; *b*, Pupa; *c*, Weevil.

stalk where it has lived (*b*, fig. 2), and appears as a beetle late in August or early in September. No doubt it passes the winter in the beetle state. It has not been known to attack any plants besides the Potato, which in some localities has been much damaged by the weevil. The insect is more abundant in the Southern and Middle States than further North. The remedy suggested for the borer, destruction of the stem containing the larva, is the only practical one for this insect. If farmers, when they first observe a vine to wilt here and there, would search for the cause of the trouble, and carefully destroy by fire all stems that are found to contain larvæ within them, they could do good service in keeping these insects in check.

Bee Notes for September.

One of the features of the apiculture of Europe is the holding of large exhibitions of bee products and apiarian implements. The bee journals of Great Britain, France, and Germany, are full of accounts of these large and interesting Honey Shows. So great is the skill displayed in making the exhibits, and so attractive are the displays, that it is no rare thing for the Shows to be visited by kings and queens. Surely the European apiarists find it advantageous to make these exhibitions, or they would not continue them year after year at great expense of time and labor. Not only are these meetings noted for their beautiful honey shows, but numerous essays, lectures, and discussions in connection with them, serve as educators in apicultural science and art.

Exhibitions in America.

Heretofore the honey exhibits in America have consisted of a few pounds of second-rate honey and a little beeswax, tucked away in some obscure corner, and sandwiched in between maple-sugar and syrup and sorghum-molasses. The premiums have ranged among the cents, and occasionally, in some unusual cases, have even reached a dollar. There was nothing to induce producers of honey to make exhibits, and still less to excite the interest or attention of visitors. Of course bee-keepers are to blame for this state of things, as no business demonstrates its importance at expositions unless its patrons possess sufficient enterprise to push it forward. It is very strange that American apiarists who have gone to the front in every other line of apicultural progress, have been so slow to recognize the great opportunity to advance the interest of their pursuit by encouraging and patronizing these exhibitions of bees, honey, etc. Owing to the fact that some of our leading bee-keepers had visited Europe, and witnessed the substantial advantages that resulted from these Honey Shows, there were two successful exhibitions of this kind held in America last year. These were at St. Joseph, Mo., and at Toronto, Canada, and so attractive were they, that no other part of the Fairs received so favorable comment from the press. Tons of honey were on exhibition at Toronto, and thousands of pounds were sold there. Bees were also exhibited and manipulated at the Fair, and the exhibit was farther aided by the display of all the numerous and valuable implements and appliances that aid the bee-keeper in his work.

Exhibition at Fairs.

The place to hold these exhibitions is in connection with the several State and County Fairs of the country. The requisites to success are generous premiums, in keeping with the importance of apiculture, a separate building in which to hold the display, a room fitted with gauze, so that the bees can be manipulated each day, with no fear from stings, even by the most timid person. The honey should be taken in quantities, both comb in sections and extracted honey in jars and tin pails. This should be put up with the greatest neatness, and labelled in an attractive manner. Some of it should be put in glass crates, so as to teach visitors how to present the honey for sale at the groceries. There should also be a large exhibition of wax, foundation, implements, and extractors, so that the decision of the Judges, who should be experts, may carry weight with it. The best colony of bees should be taken, so ventilated that the bees will not suffer, and arranged that they can be so shown that every visitor may see how easy it is to handle bees without harm. Wire gauze may be so arranged around the hive that there need be no danger of exciting the fears even of the visitors. If the bees are properly ventilated, and fed a little every day, they will not suffer by being taken to the Fairs.

The Honey Crop.

Owing to the cold, wet season, this promises to be a very poor honey year throughout the entire country. The white clover and raspberry harvest is over, and the yield was very light. Basswood offered a generous bloom, and yielded some what better than did early clover. Those who have a chance for an autumn harvest, have still reason to hope. We have one colony which has brought in from one to two pounds daily during the past week, and has not gained more than three pounds, except during two or three days. The best record was on a sultry day, when the gain was eight pounds. Possibly some of this might have been moisture collected by the honey.

Weeds Going to Seed.

Just at this season, when cultivation is mostly over, and the main crops harvested or laid by, we are most in danger of allowing our old enemies, the weeds, to go to seed. This is a most culpable and expensive practice, entailing untold labor in future years. We have had in hand the present season, an old garden, where every weed was left undisturbed, and no crop was planted last year. Their name is legion of almost every variety that infests Connecticut soil, and some that we never met elsewhere. Pig-weed, milk-weed, dock and burdock, dandelion, fennel, mustard, quack-grass, plantain, purslain, jack-in-the-pulpit, mallows, and divers other sorts have sprung up in their season, and disputed possession with the crops planted. There is only one excellence about them, they insure frequent cultivation of all crops, if you would have any harvest. The labor of subduing one year's seeding of these pests is immense. In the garden especially, no weed should ever be allowed to go to seed. When one crop is off, put in another, and when the last is gathered, plow, or rake, or harrow, and let the frost have free play at the soil. CONN.

Keeping Grapes.—In Europe a method of preserving grapes is now very generally followed. The cluster is cut with a piece of the cane still attached, and the lower end of the cane is inserted in the neck of a bottle containing water. Grapes thus treated are kept in a perfect manner for a long time. The European journals have figured racks and other devices for holding the bottles, in such a manner that they may sustain the weight of the fruit, and also to allow the clusters to hang free, and much as they would upon the vine. We are not aware that this method has been tried with our native grapes. These, even at the holidays, when the price is the highest, sell for too little to make this method of keeping profitable, but for home use, the experiment seems to be worth trying.

"Bob White," or the American Quail.

BY J. M. MURPHY.

The Quail of the Atlantic States (*Ortyx Virginianus*), which is also known as the "Bob White," and in the Southern States as the Partridge, is abundant as far West as the Rocky Mountains, and even beyond that chain now, as it has been introduced into Utah, Oregon, and other places. This species has lengthened feathers on the crown which can be erected into a crest; a line over the eye: the throat is whitish, bordered with black. The vertex, neck, and breast are brownish-red, the remaining under parts being white and marked with black crescentic bars; and the sides are streaked with brownish-red, the upper parts being varied with tawny, black, gray, and chestnut. The color of the female is paler than that of the male, and the forehead, throat, and the line over the eye are buff instead of white. There are two varieties of this species in the South, one being confined to Florida, and the other to Texas. The difference between them and the Northern bird is not very great, and consists principally in the smaller size and darker plumage of the variety *Floridanus*, and the paler and grayer hue of the variety *Texanus*, which is the common bird of Texas. The nest of the Quail is a common affair, being merely a slight excavation or a natural depression in the ground which is lined with dry grass and a few feathers. The hen lays from fifteen to twenty-four white eggs, and sits on them three weeks, generally hatching all of them. When the young appear they are able to leave the nest, and though they are veritable mites of down, they are able to follow their mother. They are exceedingly cautious little creatures, for the moment the old bird sounds an alarm they scatter in every direction and hide in the grass until the reassuring voice of their guardian summons them to her side. If a dog or a cat approaches the brood, the mother pretends to be wounded, and flutters far enough ahead of it to keep out of harm's reach, and when she has led it some distance away from them, she rises in the air with a cluck of joy and triumph, and returns to her family, which she soon gathers about her by endearing calls. Although the Quail is a timid bird, yet it has been known to associate with the barnyard fowl, especially in winter, and to remain around the outhouses of a farm for weeks at a time. Its eggs have also been hatched by a hen, and the chicks followed their foster mother until the ensuing spring, when, through some overpowering instinct of nature, they left her and sought their free companions. Instances are known, however, in which the birds were not only content to remain in confinement, but also to lay eggs which proved fertile when hatched under a Bantam hen or either of the parent quails. It is often rather difficult for a captive female to hatch her own eggs, as the male dallies with her so much, and uses all his powers of fascination to such an extent, that he frequently induces her to desert her nest, in order to prolong the love season. The Virginia Quail has two broods in a year if the weather is fine and the summer long, but in the more northern regions it raises only one, unless the first eggs laid should be destroyed, and then it may try to raise another. While the female is hatching, her mate sits on a shrub or a fence close by, and whistles his soft notes of "Bob White" by the hour, as if he were encouraging or comforting her with words of endearment. Although the bird derives its ordinary name from these two notes, yet it has a variety of others which it uses when a bevy assembles or when it meets its kindred out for a promenade.

The Quail eats grain, insects, and sometimes grapes, but it is content with a very small quantity of the latter food, hence the statements made against the Valley Quail in California, that it destroys vineyards, are partially founded on a misapprehension. To poison it by the thousand on this ground would therefore seem to be wrong, for it often more than atones for any harm it may do by the quantity of Chinch-bugs and other insects it destroys, and which, but for it, would lay waste the grain fields. The favorite feeding resorts of the "Bob Whites" in fine weather are the stubble-fields which are close to water. They frequent these each morning and evening, but seek cover in the bushes, hedges, and fences during the day. They lie in concealment nearly all day in rainy weather, and if tracked by dogs they try to escape by running, so that a man may have to follow them for several hundred yards before he can get near enough to flush them. They hie to the timber for shelter in snowy weather, but return to the field in a day or two after the storm has ceased. If they are flushed then they will fly for the first convenient cover, and try to hide, or to escape by running through the bushes as fast as they can. They often double like a hare on such occasions, and give a dog—unless he is exceedingly staunch and keen-nosed—a great deal of trouble to trail them. If one of the bevy calls soon after seeking shelter, a person may expect all to flush again in a short time, as it is a proof that they do not like their refuge. Should the sportsman desire to know their place of retreat, in case they keep silent, he can learn it by uttering their call, as he is almost sure to receive an answer, especially in the early part of the season. The call must be correct, however, or it will only make them scamper off. When the cold weather approaches, and the ground becomes frozen, quails frequent the more open stubble-fields in search of food. If they are flushed then they rush for the tall grass or bushes, and lie so well that a whole bevy may be killed one by one, if a person has a good dog. Old birds are so cunning, however, that they may not await the approach of even the steadiest setter, but fly to the thickets or woods, if any are near, on catching sight of him.

"BOB WHITE," OR THE VIRGINIA QUAIL, (*Ortyx Virginianus*).

The bevies leave the high grounds in October and march or fly to the banks of streams or lakes, but they return in November, which is called the "running season," on acount of their wildness, and the fact that they will not lie before a dog, but run ahead of him as fast as they can, and seek shelter in bushes and thickets where it is impossible for him to follow them. They may be found in grain fields up to eleven o'clock in clear, frosty weather, but after that hour they resort to the banks of streams and sloughs, and lie on the sunny side of fallen logs and preen themselves. They go to the stubble again in the evening, and when they have dined they rise suddenly in the air and drop in a neighboring field, taking excellent care not to run about much, for fear of leaving a trail for their foes to follow. They generally sleep in a circle, with their heads turned outwards, so as to better guard against a surprise; and if they are not disturbed they frequent the same roosting-place for several nights in succession. Although they have many enemies, the worst is the hawk, which skims noiselessly over the grass or darts down upon them suddenly, from a high altitude. If they espy this deadly foe in the winter, when the ground is covered with snow, they dash into the fleecy shelter and soon make a hole large enough to protect them from all danger. The best time for quail shooting is November and December, when the frosts have wilted the corn-stalks and deprived the bushes of their thick covering of leaves. The sportsman should be early afield, for as soon as the sun appears the birds leave their roosting places and commence running about. Their scent is then easily found by a dog, especially if they are plentiful, and they generally are at that season, as they congregate in large bevies. When they are flushed they fly for the first cover, then scatter, and lie so close, in many instances, that a person may kill the majority of them, as they rise singly or in pairs. The best dogs frequently fail to detect birds which are actually under their noses. The cause of this is attributed by some persons to the power the quails have of withholding their scent, while others assume that it is the result of "too much scent being scattered about," as the birds run in various directions when they alight, and thus make it impossible to locate them. Some think that the creatures are so terror-stricken on reaching cover that they press the feathers close to the body, and thus prevent their scent from escaping. Either of the latter two theories seem more plausible than the first, as it does not seem possible for a bird to have the power of voluntarily withholding the odor of its body. The only way to rout the quails, when they baffle the dogs, is to thoroughly beat the ground or bushes, as they often wait until they are almost kicked out before they take to the wing. The Virginia Quail is the only species of its genus that really affords good sport, as it is the only one that will lie any way well to a dog. It is also scattered over the greater part of the country, from Massachusetts to the Rocky Mountains, but it is far more numerous in the Western States, where it is nothing unusual for a man to bag twenty or thirty brace in a day, with a muzzle-loader. A pot-hunter has boasted of killing two thousand in a little over five months, and a person who considered himself dexterous with the gun was known to kill two hundred and ninety in three hundred shots. The birds are easily bagged in the open ground early in the season, as they fly straight away—if a person does not become nervous from the rapidity of their flight. Excitable people should try to give them a start of twenty or thirty yards before firing, as that distance will enable the shot to scatter, and increase the possibilities of a hit. They ought also to take deliberate aim, as snap shots are not so likely to be successful as those delivered with a prompt but steady swing. If the birds are not too wild, a charge of three drams of powder and an ounce and an eighth of No. 10 shot will be found sufficiently powerful to bring down the toughest old cock, going straight away at full speed; but No. 8 is better at a later period in the season, when the birds are exceedingly wild, as it has a velocity of seventy-one feet a second greater than No. 10 shot. It may also be stated that a ten-guage gun will send its charge one hundred feet per second faster than a twelve-guage can, and is therefore the best to use throughout the year.

Why Does the Butter Come?

BY PROF. G. C. CALDWELL, CORNELL UNIVERSITY.

It is known that the fat in the milk is in the form of minute spherical globules, and that these being lighter than the surrounding liquid, or the *milk serum*, as it is conveniently called, collect mostly at the surface when the milk is allowed to stand quietly for a time, and that when either this cream or the milk is violently agitated so as to throw these globules against one another, they stick together in larger and larger numbers until finally visible clumps of butter appear. All this we know full well; but wise men of science and of practice have sought for many years for an explanation of these familiar phenomena, without being able as yet to find one that is in all respects so satisfactory as to meet with universal acceptance.

The oldest theory of any importance, and one that is familiar to many, is that each little globule of fat is enclosed in an envelope or sac of albuminous matter, and that as long as these sacs are whole the globules of fat will not stick together any more than will two pats of butter nicely wrapped up in cloth, or two sausages in their skins; but these sacs are supposed to be very thin and tender, and to be weakened by acids, and that when they are knocked together, especially in the acid cream, their envelopes soon get worn through or torn, and the fat escapes and naturally collects together, while the remains of the delicate sacs in the buttermilk make it turbid. This explanation is generally attributed to a Frenchman, who announced it in 1842; it looks plausible, for it appears to explain many of the phenomena satisfactorily; but the one most serious difficulty with it is that so many eminent microscopists have searched for these sacs or parts of them, without being able to identify them. When we find all who have the necessary experience to enable them to understand correctly what they see with it, uniting in the declaration that, according to the best of their knowledge, the fat globules are not encased in membranous sacs, we can safely affirm that the theory lacks its most essential foundation stone, and that the question, why does the butter come, must be answered in some other way.

A second theory is that the fat globules, though entirely bare, are nevertheless so closely surrounded in the milk, and especially in the cream, with a sort of thickened milk serum, that they are kept apart until, by being thrown forcibly together in the churn or in any other way, the slimy layer is momentarily squeezed out from between them, and they adhere. Soxhlet, to whom we owe many valuable contributions to our knowledge of milk, explains why the butter comes, that has many strong points in its favor. Butter fat melts at about 90° Fahrenheit; but he takes the position, to begin with, that even in cold cream the fat is still in liquid form, as it was in the warm milk just from the udder—that each globule is a globule of a liquid, and not of a solid, as might naturally be expected at low temperatures. That a substance may retain its liquid form at a temperature much below that at which it remains solid when once solidified, is a well-known physical law, and he illustrates it for this particular case by interesting examples which I can but very briefly notice. Water, if allowed to stand in perfect quiet in a cold room may fall to several degrees below its natural freezing point without freezing; but as soon as the glass containing this under-cooled liquid is moved so as to agitate its contents, perhaps ever so little, freezing follows instantly. Many of our readers may have themselves observed this phenomenon. When the liquid is divided up into very fine particles it is still easier to carry it to very low temperatures without freezing; and this subdivision may be pushed so far that the smallest globules will require violent shaking up as well as a low temperature for their solidification. Again, it is a well-known physical phenomenon that when a liquid is thus divided up into very small globules, which are suspended in the midst of another liquid with which they do not mix, in the same manner as oil will remain entirely unmixed with water, these globules do not run together as they would naturally be supposed to do; on the contrary, they resist any attempt to make them unite, and are more likely to subdivide still further if pressed together.

It is quite possible, then, for the globules of fat in the milk to retain their liquid form, even when the milk is very cold; and in remaining apart, they only do what any liquid globules would do under the same circumstances. Now when this mass of liquid fat globules in the cream, cooled down below the temperature at which the fat of which they are composed is solid, is shaken up in the churn, the same result should follow as when the tumbler of under-cooled water is shaken; the globules solidify suddenly, and then they adhere when thrown against each other; this is Soxhlet's answer to the question—Why does the butter come? If this is the correct answer, then freezing the milk so thoroughly that even the fat solidifies should at least in part take the place of churning, since the first labor of the churning is spent in getting the globules into the solid form so that they will adhere. Such a result was obtained in one experiment by Soxhlet. A quantity of milk was divided into two equal parts, one which was kept at about 68° Fahrenheit, while the other half was completely frozen, and then thawed out by putting the vessel in water at 68°; both portions of milk were then churned as nearly as possible in the same manner in small glass churns, and that one which had been frozen was brought in two minutes to the condition in which the butter was just ready to come, while the other portion required eleven minutes to reach the same condition.

But even this theory, which appears to be so fully in accordance with the laws that govern the behavior of liquids, and which does not seem to assume anything opposed to the facts, and was consequently very widely approved, is not allowed to have undisputed possession of the field. Storck, an eminent Danish investigator of milk, does not find that the question put at the head of this article is satisfactorily answered. His answer, however, as well as perhaps an attempt to answer that other question which sometimes presents itself to the practical dairyman—Why doesn't the butter come?—must be deferred for consideration until another time.

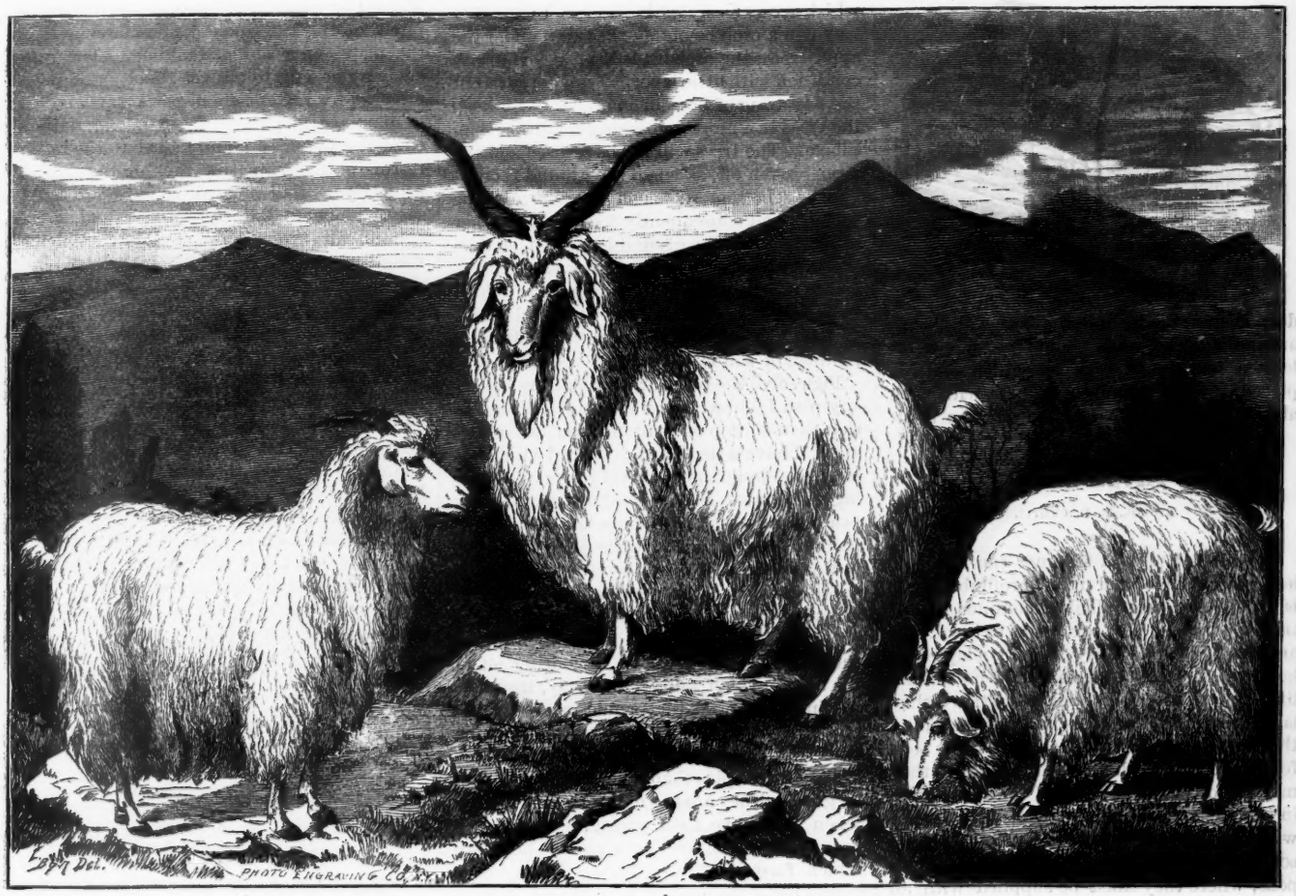
The Kentucky Coffee Tree as a Fly Poison.—Mr. "G. F. H.," Albemarle Co., Va., writes us: "Back of our house here, and overhanging the piazza, is a very large "Coffee Tree." Though this locality is infested, like Egypt, with a plague of flies, we have never suffered any serious annoyance from them. One year this tree was nearly stripped of leaves by a cloud of Potato Flies (the blistering fly), and we feared that the tree would die from the complete defoliation. In three days, the ground beneath it was black with a carpet of the dead corpses, and the tree put out new leaves, and still flourishes. For ten years we have used the bruised leaves, sprinkled with molasses water, as a fly poison. It attracts swarms of the noisome insects, and is sure death to them. There are, I am convinced, two distinct varieties of the tree. This one rarely bears seed, but multiplies by numerous sprouts sent up at a great distance from the trunk—often 40 feet off; the other is covered with large pods. [The staminate and pistillate flowers are on separate trees.—ED.] I doubt the efficacy of the latter as a fly poison, since several of this kind grow about the houses here without the beneficial effect having been noticed.

The Angora Goat.

Angora Goats can not bear confinement; indeed a wide range is an essential condition to their success. It must be borne in mind that they are omnivorous, so far as vegetable growth is concerned, and in flocks must be carefully herded, to prevent depredations upon cultivated grounds. For this reason, island localities are especially suited to this industry. Already some of the islands near the Pacific Coast have been occupied by goats, and we have no doubt there are many islands on the Atlantic Coast that may be profitably occupied as goat pastures.

It is a common impression that the Angora and the Cashmere Goat is the same. This is a mistake. The animal which furnishes the material for the costly shawls of Cashmere is found upon the southern slopes of the Himalaya Mountains, near the regions of perpetual snow. While the long fleece, or "Mohair," is the product for which the Angora Goat is valued, that of the Cashmere Goat is a very fine, downy substance, or "shawl wool," found beneath its thick, coarse hair, and known as "Pashum." This is combed out in the spring, and in the country where it is produced is, when cleaned, worth from $1.50 to $2.00 per lb. But very few attempts have been made to introduce the true Cashmere Goat into this country. A pair was imported in 1848, but the male soon died, and it is probable that they can only be successfully kept in very elevated mountain localities. Even could they be acclimatized, there is as yet no demand for their product, which, in the native country of the animals, is only worked up by a tedious process of hand labor, which could not be introduced in this country. It is probable that when the Angora Goat becomes better known, its whole value will not be found in its fleece. Its flesh is said to be of excellent quality; indeed those who have eaten it in California say that it is preferable to mutton or venison. There is a general prejudice against the flesh of the goat which is entirely unfounded. The flesh of a kid is quite as acceptable as that of a lamb. That of a well fed, year-old animal, if it has had a free range, is as rich and juicy as mutton. The writer, while living

upon the Mexican frontier, has several times served to a dining party a leg of young goat, which was eaten as mutton. The name of the animal was not mentioned, but the fact that the plates were sent for more showed that there was nothing unpleasant about the meat. If the Angora will give better meat than a young, well fattened common goat, it should be encouraged as a source of food. The milking qualities of the Angora are said to be much superior to those of the common goats, and the grades are reported to be abundant producers of very rich milk. The keeping of goats as milk producers appears to be, in this country, at least, confined to those who live upon the outskirts of large towns, where grassy roadsides and commons afford pasturage for these animals. In such localities the squatters and dwellers in shanties keep many goats, which are a great annoyance to the neighborhood when allowed to get loose. In this country, beyond this keeping of the "Nannies" for milk, and the breaking of the "Billies" to a rude harness, to be sold singly or in pairs to the wealthy, but little attention has been given to the common goat as a productive animal. There are large tracts in the far Southwest, in New Mexico, Arizona, Western Texas, and parts of California, where goats may be profitably kept, even the common kinds, if only for their skins. The skins of the goat are used for morocco leather, and largely for gloves. Very few are aware of the extent of the commerce in goat skins. The annual importation of goat skins into England from the East Indies and Africa is stated, on good authority, to be over four millions of dollars. The hair of the common goat is woven into a coarse "linsey," and it is also spun into very durable ropes. The horns of the goat are used for the handles of knives and forks, and the tallow makes excellent candles. In his new and valuable volume just published on the Origin, Culture, and Products of the Angora Goat, Dr. John L. Hayes, President of the Tariff Commission and Secretary of the National Association of Wool Manufacturers, furnishes the following information:



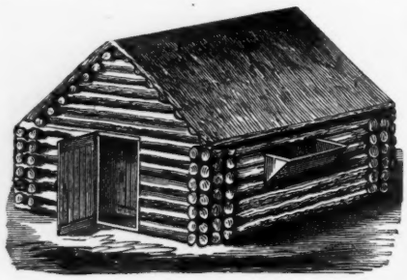
A GROUP OF ANGORA GOATS.—*Engraved for the American Agriculturist.*

The Angora Goat (*Capra Angoriensis*), specifically different from the common goat (*Capra ægagrus*), is derived from Falconer's goat (*Capra Falconeri*), inhabiting the mountains of Little Thibet, in Asia, and is probably of comparatively recent origin in Asia Minor, its present most important habitat. The Angora Goat is completely acclimated in the United States, and the race appears to have been actually improved in this country in favorable locations and under intelligent culture. It survives in all sections of this country where there is not an excess of moisture; but is most advantageously kept in localities where there is a range for open-air feeding and pasturage throughout the year, and where there is no necessity for winter stabulation. The notion insisted upon in Asia Minor, and formerly entertained here, of the necessity of a high altitude for the successful culture of the Angora, appears to be negatived by experience in this country and elsewhere. Regular summer and winter food is an important factor for the production of the best Angora fleece, which in this country starts to grow the first of August, and stops growing in January. An indispensable condition of success in the Angora husbandry in this country is a provision of acclimated stud flocks of thorough-bred bucks and ewes for regenerators, meaning, by thorough-breds, Angoras imported from Asia Minor of unquestioned selection, and their progeny.

The most rapid and advantageous method of forming large flocks of Angoras is by crossing thorough-bred Angoras upon common goats, and the ewes of the resulting product, with the object of merging the common race in the superior. Good results are obtained at the fifth cross. It is indispensable that thorough-bred bucks should be invariably used for propagation. Millions of acres in this country, unsuitable for sheep husbandry, may be advantageously occupied by flocks of Angoras, which may be grown at half the cost of sheep in their most favorable locations, and with at least an equal return in the product of the flocks. There is now a complete assurance of a domestic market for all the fleece of the Angora, of good quality, that is likely to be grown in this country for many years. While extraordinary profits are not to be relied upon permanently in any branch of production open to competition, the Angora husbandry offers opportunities in favorable localities in this country, equal at least to those in any other branch of stock-growing, provided sufficient duties upon the products of the Angora and mohair industries are preserved.

A Log Root-House.

It is not well to delay the building of a root-house until the time for harvesting the roots. The essential points in a good house for the storing of roots are; protection from the frost, dryness, and proper ventilation. For those who live in a wooded locality, a house built of logs is cheap and very satisfactory. Such a root-house is shown in the engraving. An excavation about three feet



A LOG ROOT-HOUSE.

deep is first made, and the log walls built around it. The walls should be double, at least a foot apart, between which earth is placed; the roof is made of timbers, with earth above, thick enough to keep out the frost.

Pigs for Profit.

BY COL. F. D. CURTIS.

The care of pigs in summer can be made less troublesome and more profitable than is usually the case. Unless confined in restricted quarters, pigs are liable to break out and do mischief. They are not adapted to being kept with other stock, as no animal likes to feed after pigs, and while this dislike is so marked that animals will not eat out of the same vessel from which pigs have been fed, or in which they have "mussed," they may be forced, from hunger, to eat the grass in the pasture where they run, but it is not wise to compel them to do so. For these reasons, farmers generally keep pigs shut up in pens, where they must be supplied with all the food they require. Sometimes this condition is improved upon by allowing them a small range on the ground. This is better than close confinement in the pen, as it makes them more comfortable and healthy, but it does not lessen very much the amount of care they require, as the supply of food is soon exhausted. It is a better plan to have the enclosure so large that the pigs cannot readily consume all the grass and make it bare of any kind of vegetation. When pigs are not rung, to prevent their rooting, they will soon spoil a small enclosure, and also damage a larger one. This injury to the pasture can easily be prevented by inserting in their snouts two or three rings made of malleable wire. Care should be taken to have the ends of the wires straight, so that they will not pull out. Every farm should contain a pasture for pigs, set apart for their exclusive use. It should be large enough to afford them ample space, so that while they are feeding off one portion the grass will grow on the rest of it, to afford continuous feed. The size of the pasture must be regulated by the number of pigs to be kept. An acre is sufficient for three or four hogs, especially if the ground has been seeded with Orchard-grass, which starts the quickest and furnishes more feed than most other grasses. The manure from the hogs will increase the growth. The fences should be of a substantial character, so that the pigs will not break out. An unruly hog is the hardest kind of animal to confine, hence the importance of good fences, to prevent them becoming breechy; a board fence, or a stone wall is the best calculated for this purpose. There is no ground so well adapted for a permanent pig pasture as an orchard, and no grass so well suited to it as Orchard-grass, which grows freely in the shade. In no other way can a crop be obtained so well under the apple-trees; the orchard is kept in a vigorous condition with little labor. I am not sure but the pasturing of hogs in an orchard will keep the trees in a more flourishing condition than tillage. The trees will not be bruised and the roots broken off, as when the ground is cultivated. The fine roots can come nearer the surface, and consequently feed on the richer soil than when the ground is plowed, as they are then torn away and destroyed. Tillage is not necessary for the vigorous growth of trees, nor is it essential for bountiful yields of fruit. But for an abundant fruit harvest richness of soil is of far more consequence.

Pigs solve the off-year problem the best of any plan I know of, by making the land so rich that a crop of fruit may be had every year. I have a small apple orchard which has not failed in an annual yield for years. During this period it has been used exclusively as a pig pasture. No manure has been put on it other than that made by the pigs. My faith in this remedy for off-years is so strong, that another apple orchard, embracing about five acres has been prepared for a permanent pig pasture. The pigs will undoubtedly improve the quality of the fruit by devouring all of the apples which fall prematurely, thus destroying the worms that would injure the apples. There is no mode of treatment which will cause breeding sows to be so healthy and to bear better pigs than when allowed to feed on grass. They are not delirious or ferocious when they have their young, as frequently occurs when confined in a pen. The losses which farmers often suffer on this account, would equal the cost of preparing a permanent pig pasture. When pigs are kept confined and fed entirely on grain, their profit is often a doubtful question. But fed on grass their growth can be made so cheaply that there is no question about profit in hog raising. Under the system stated above, pigs are made valuable aids on the farm in producing other beneficial results.

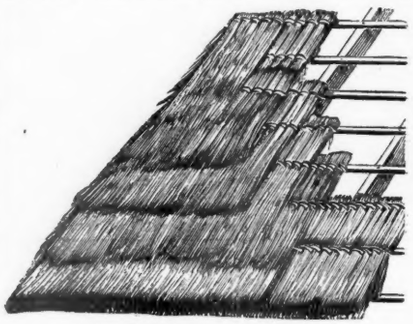
The Value of Ashes.—Coal-ashes do not contain much plant-food, and their value is mostly mechanical. Wood-ashes are rich in potash, one of the three substances the most frequently lacking in poor soils. This potash is very soluble, so that fresh ashes is a quick-acting fertilizer. Leached ashes has the larger part of the potash removed, and they are of much less value The following figures express the percentage of valuable ingredients in unleached and leached ashes:

	Potash.	*Lime.*	*Phosphoric Acid.*
Unleached	7 to 10 %	32 %	2 %
Leached	1 to 2 %	25 %	1½ %

It will be seen that the loss of 6 to 8 lbs. of potash per hundred is the leading difference between the unleached and leached ashes.

Making Straw Roofs.

For twenty years I have been making roofs of temporary shelters with rye-straw. The straw should be cut when fully ripe, kept straight, and threshed clean by hand with a flail. All the grain must be removed from the straw, or rats and turkeys will make sad havoc with the roof. I do not make the building more than 20 feet wide. Any kind of soft-wood poles will do for rafters, as small crooks will not show in the roof. Make the pitch very steep, at least half-pitch, or the ridge-pole 10 feet higher than the plates of a 20-foot building. The rafters may be cut to project 1 foot, or if poles are used for rafters, small poles, say 2 inches in diameter, may be cut 2½ feet long, flattened at the upper end, and nailed to the rafter resting on the plate, thus making the desired projection. Nail a good solid small pole, say 1½ inch in diameter, on the end of the rafters, all around the building, splicing when necessary, then use inch poles for sheathing, nailing them on about 9 inches apart. The roof should be hipped at the ends, as it saves gables and looks better. Commence the roof with a loose bunch of straw; compact it in the hands. Let the butts project about 3 inches over the outside, and tie it to the outside pole and to the one next above. This front row must be doubly secured, to prevent the wind from lifting it. Lay on another row of bunches, letting the butts come down even with the first, but securing with but one tie to the third row of poles. Put on the third row of bunches, letting the butts come about 9 inches up on the two front rows, and proceed shingle fashion until the roof is completed. Finish the roof



ROOF SHOWING THATCHING.

by binding a good supply of straw across the comb, running one or more wires along on each side, and sewing through with wire. For this one will need an assistant on the underside to return the wires through the straw. The corners, also, would be better secured with a little wire. Trim off the eaves with a knife. I have always used willow ties to fasten on the straw, but one can use twine or the kind of wire used by the binders. An expert hand may make a good roof and tie it with straw. I have a shed made in this way 30 by 20 feet, used for storing machinery, the whole cost of which was fifty cents for nails, and four days' work for two persons; the posts, poles, straw, and ties, were home products. A roof thus made and not disturbed by stock, rats, or poultry, will last twelve or fifteen years. But if used for stock, it must be put up high enough, so no animal can reach the eaves on a cold winter night. If for storage, and away from stock, the sides may be closed up the same as the roof, only not so thick. KENTUCK.

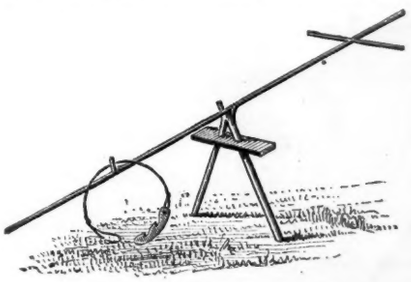
Broom-Corn Cutting—Unprofitable Broom Making.

A correspondent who prefers to be known as "Kentuck," Harrison Co., Ky., gives incidentally to his method of cutting Broom Corn, an account of his unsuccessful attempt to help others, essentially as follows: "A few years ago, we raised considerable Broom Corn, mainly for the purpose of giving employment to an extra hand or two in winter, in making up the corn into brooms. Having a good work-room, we thought we could have the corn made up into plain serviceable brooms, by some poor men of the neighborhood, and sell them at a profit to them, and us also. But in the matter of having them made up at a profit for either party, we were mistaken. In the dark short days of winter, notwithstanding a light and fire were furnished gratuitously, they would work from 9.30 A. M., to 3.30 P. M., taking a hour and a half at noon, making four and a half hours at work, when they should have made ten. The result is, our Broom-corn is now stored in the barn loft, where it has been for five or six years. But we made a discovery in the mode of cutting the crop, which I think has never been given to the public. It is simple, but will very materially lessen the labor of cutting, if any one will give it a thorough trial. The plan is to get astradle of the row, and back down over it, cutting the canes as they come out in front of you, with a pocket knife, gathering the corn with the left hand, and throwing it into piles as cut. Three or more rows can be thrown together in piles on the ground, and gathered by the haulers. No 'tabling,' or previous preparation is required; just put on your apron on the *other side*, and back into it, and you will find the brush just where you want it. The owner of the field will soon find that half the usual number of cutters will keep his stripper busy."

The Clover Plant is a close and deep feeder, sending its fine roots far down into the soil, filling the sub-soil with a net-work of rootlets. It exposes a large leaf surface, and is thus able to concentrate weak solutions of plant food, and prepare them for the formation of vegetable substance. The clover plant grows throughout the whole season, and is thus able to take up the nitrates as they form. These compounds of nitrogen are produced in large quantities in hot summer months, and, being very soluble, would be washed out by the rains, were it not that the clover plant absorbs them. This is one great advantage which clover has over all the common grains, that finish their growth, and are harvested before the time for the most rapid nitrification arrives. It is a well-known fact that clover prepares land for the production of large crops, and this is explained in large part by the long season of its growth, and its deep and close feeding, and the storing up of compounds of nitrogen. The clover plant is largely below ground, so that removing the tops takes away only a part of the vegetable matter that has been accumulated. The roots of clover are large and numerous; when they are turned over in plowing, and decay, they yield a good supply of plant food to such crops as feed near the surface, and must grow rapidly for only a few weeks. In this way the clover crop will help the succeeding wheat crop, and has given rise to the saying, that: 'clover seed is the best manure a farmer can use." If the whole crop of clover is turned under, as a green manure, a much larger amount of plant food is put into the soil. This is one of the quickest, cheapest, and best methods of increasing the fertility of a piece of land.

A Corn-Shocking "Horse."

Mr. John Stewart, Oswego Co., N. Y., writes us: "It is about two years since there



A SHOCKING "HORSE" FOR CORN.

was in the *American Agriculturist*, an illustration of a method for securing corn-fodder with wire bands. This method I at once adopted, and for which I have often been thankful. I send a sketch of my method of fastening these bands, which I have used with entire satisfaction. The fastening is made of hard-wood, the size of ordinary lath, and about five inches long, with two or three notches, thus adapting it to different sized shocks. I send, also, a sketch of an improved "Horse," the step acts as a brace for the legs, and to stand upon when corn is very tall, so as to enable the person to secure the band near the top of the shock. A pin is shown in the "Horse," to hang a few bands upon. With these appliances one is ready to shock the corn. The "Horse" and the fastenings, are shown in the above engraving.

Folding Poultry Shipping Crate.

BY GRUNDY, MORRISONVILLE, ILL.

On farms, where chickens have full run of the yards, they pick up a great deal of food which would otherwise be wasted, and the cost of raising a limited number is comparatively small; but where they must be fed

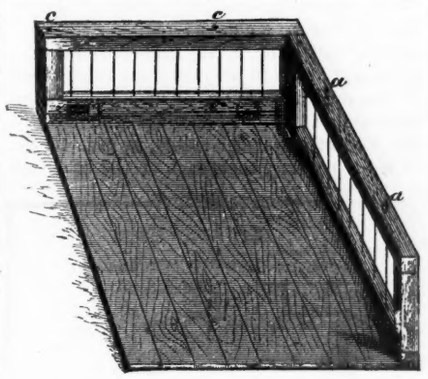


Fig. 1.—THE CRATE, SHOWING TWO SIDES.

grain, the profits are reduced to a fraction, and a very small fraction if they are sold to the store-keeper for "trade." One of the chief reasons why more farmers do not ship their own poultry is the lack of suitable shipping crates. Express companies charge for *weight*, and unless the crates are light and well made, they object to returning them free. Poultry sells better in crates which are light, handsome, and airy.

I send you a sketch of a crate which I invented, and feel warranted in saying that any man who uses it for shipping his poultry once will discard all others. The crate is exactly square. Figure 1 shows two sides and the bottom, or floor, as they are made and attached together. Figure 2 shows the crate empty and folded, also the top, or cover, with its trap door. The entire frame-work is of any tough wood—ash is best—one and a half to two inches square, according to size of crate. The bottom is half-inch pine. The wire I use is common fence wire. The sides figure 1, are hinged to the bottom, or floor, and when folded lie flat on the bottom. On the top of the side, two pins, *a*, *a*, iron or wood, fit into holes in frame of the cover. The sides are hinged to a piece, which is securely fastened to the bottom, and when folded lies on the side. Through the top of the sides are two three-sixteenth-inch holes, *c*, *c*, into which bolts of the same size are passed and through holes *s*, *s*, in the cover

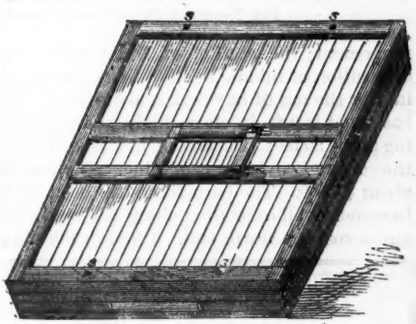


Fig. 2.—THE CRATE FOLDED.

and hold it down. When the crate is folded these bolts are withdrawn from the holes *c*, *c*, and passed through the holes *e*, *e*, in bottom piece of the same side, and then through holes in cover, and hold the whole crate solid and flat for shipping. Thumb-nuts should be put on these bolts, requiring no wrench.

The crate can be made any size desired. A crate holding three to five dozen chickens is usually large enough. In shipping long distances care should be taken to not crowd the birds. Give plenty of room and it will pay in the end. Where the distance is short, ten or fifteen hours' travel, they will not hurt in this crate if crowded considerably, as they cannot become heated.

When well made of good, seasoned wood, this crate will stand a large number of trips. It should be well washed after each shipment. The wood should be well oiled but not painted. If thought desirable, the wires on the cover may be braced in one or two places with binding wire. Fasten one end to the frame, wrap it twice around each wire and fasten to opposite side of frame.

The Fairs are Schools.—The information which a farmer can gain at an Agricultural Fair is of great value to him. He can there study and compare the different breeds of live-stock, and note the improvements that have been made in farm implements, grains, fruits, etc. It also does farmers much good to meet each other, and talk over their successes and failures.

A Medium Sized Barn.

Mr. Edward Pratt, Jackson Co., Mich., sends us plans and elevation of a barn which he thinks is well arranged for the convenience of the general farm of 100 to 200 acres. He writes: "The plans show the general arrangement; the section of frame gives the disposition of middle bents with a clear opening for the use of hay fork and carrier. The basement is 9 ft. in clear; hight main building posts, 20 feet. The basement timber is oak, the rest and covering is of pine. The cost is about $1,500. The barn fronts the east, with basement wall extending along the west side and across the north end. I find in building

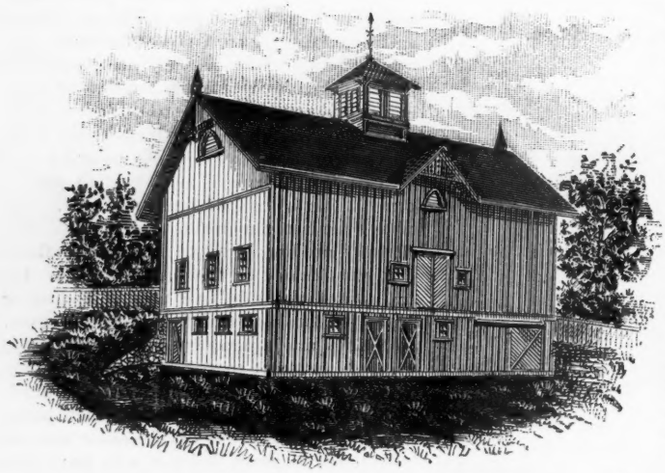


Fig. 1.—REAR PERSPECTIVE VIEW OF THE BARN.

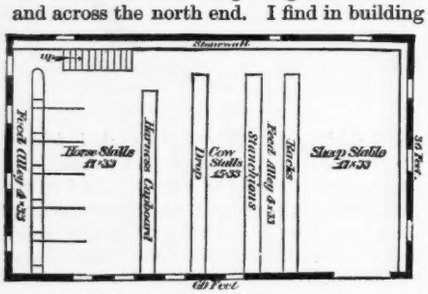


Fig. 2.—PLAN OF THE BASEMENT.

that there are a great many little conveniences that can be worked into a barn of this kind that are difficult to describe, but add much to handiness and ease of doing work."

Economic Feeding in Winter.

BY PROF. J. W. SANBORN, AGRICULTURAL COLLEGE, HANOVER, N. H.

That kindness can be coined into cash in stock management, and that good sanitary conditions can boast of the "penny saved," are admitted, but these are factors not in themselves, or in their products weighable, and we pass them, and similar conditions, for a brief notice of a few essential points relating to animal growth, and the increase of some of its products, the value of the observance of which, we can measure by that impressive standard, the dollar.

Animal-heat is one product of the materials taken into the system by the animals. Excluding high or summer temperatures, the colder the day, or the lower the temperature surrounding the animal, the larger the share of the food consumed, that goes to maintain its necessary heat. The amount of food required to maintain normal animal temperature, is modified in practice by at least three common methods. The more important of these I will name here:

Warm stables, or those within which the temperature can be easily maintained higher than that outside, by preventing too free a circulation of the air. How to make such a stable, is a question which I do not propose to answer, but to consider the comparative value of such stables. I may add that our College Farm barn has upon close-laid boards, a layer of heavy paper, covered by clapboards. The stalls are ceiled up in a section of the barn, forming quarters where water will not freeze in winter. Leaving out some fine questions in physics, about heat-units, etc., let us enquire whether well constructed stalls will *pay*. All admit that in cold weather more food is eaten, but in practice, most say that hay is cheaper than boards. Western men often openly maintain it. We must know what degrees of temperature mean, in pounds of hay or milk. Very many prolonged trials have shown me that the milk flow of cows fluctuates with the temperature, and in a marked degree when the inside temperature, as in an ordinary barn, follows closely the outside changes. The amount of the change of milk flow depends upon the length of time and intensity of the change of atmospheric temperature. A change of temperature of 1° for 10 days, will be clearly noticed in milk product, or 10° for one or two days, will have unmistakable effect on the amount of milk. I have collected a considerable material, yet probably not enough for an exact statement, but the indications seem to be that a change of 5° to 10° for a prolonged period, say a month, in temperature, is followed by nearly the same per cent in change of milk flow. Thus, everything else being equal, I should expect that a stable averaging 32° would show a milk flow on the same consumption of food of about 10 per cent more than would be the milk flow in one of an average temperature of 22°. Supposing each cow of the lot in the warmer stable, to give 10 qts. of milk per day, then each of the other lot

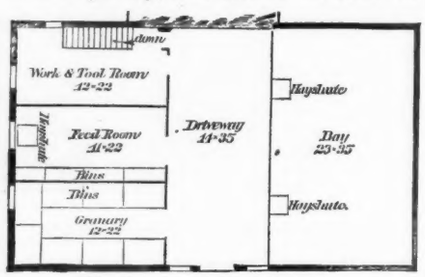


Fig. 3.—PLAN OF MAIN FLOOR.

would give but about 9 qts. A quart of milk per day, for 100 of our colder days, at 2½ cts per qt., would give a saving of $2.50 per cow. A somewhat similar result I arrived at by a different method. I ceiled up stalls for 15 cows at a cost of $30. I ascertained how much milk cows in these stables were giving each. Then two were put upon the other side of the barn for a month, and at the close of a month, the two lots of cows were exchanged, and the milk flow noted. The hay eaten was daily weighed for each lot; the weight of the cows noted, and the amount of butter from a given quantity of milk taken. The quality of the milk, so far as butter was concerned, and the weight of the cows were not seemingly affected by the temperature, the changes noted being in the amount of food eaten, and in the amount of milk flow. The food saved by the warmer stalls, was 8 lbs. stover, and 9 lbs. hay per cow, per day, and the increase of milk flow, 2.8 per cent. With hay at $16 per ton, stover at $8, and a cow giving 10 qts. milk per day, worth 2½ cts. per qt., we have a total in favor of the warmer stalls, of 11 cents per cow per day. These facts were carefully taken over a

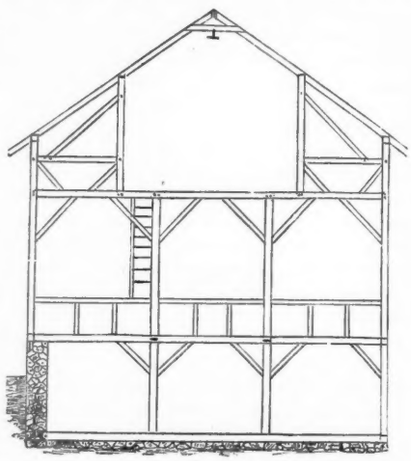


Fig. 4.—SECTION OF FRAME OF BARN.

period of nearly 3 months, and in their results show that I nearly got the cost of improving the stable for the first winter, or about 100 per cent interest for four months. The difference in temperature of the ceiled stalls, and those of the open barn, was from 10° to 12°. I will give an illustration of the effect of change of temperature, on a lot in stalls not closed from the open barn. Jan. 18 to 28—yield 880 lbs. milk, temperature 1° below the freezing point. Jan. 29 to Feb. 7—yield 800 lbs., temperature 10° below freezing point, loss, 10 per cent. Many a farmer whose money is out at low rate of interest, on doubtful security, will find it profitable to invest in better stalls. How warm shall we attempt to maintain our stables? My impression is, that it will not be desirable to gain an average temperature above 45 to 50° in cold weather, unless by artificial sources of heat, a higher temperature is gained by sacrifice of essential ventilation. I thought that in the trials, 45° gave me as good a result as a higher temperature. Others say that 60° is the most desirable.

Advantages of a Rotation of Crops.—Different crops require food elements in different proportions; thus clover and roots need more potash and nitrogen than the grains. A rotation enables one kind of plant to work for another. Thus clover, a deep feeder, brings a large amount of plant-

food up from the subsoil, which wheat or oats can use to advantage during their short period of growth. A variety of crops permits the farmer to cultivate the soil and keep it clean of weeds, and deep and mellow. A good, five-year rotation is wheat, clover (two years), corn followed by oats.

Rearing Pure-Bred Fowls.

BY D. Z. EVANS, JR.

During the prevalence of the so-called "Hen Fever," fabulous prices were paid for very poor specimens of fowls. Until breeders of poultry called a meeting, and devised and formally adopted the "standard of excellence" for poultry, each breeder carried out his own views in regard to shape, size, markings, and name, and confusion reigned supreme. Method, knowledge, and experience now rule, and it is owing to the "standard" that we now have such a uniformity in the aims and results of breeders of pure-bred poultry.

There are very many business men in the cities who live in suburban places, or in towns near by, who could raise fine pure-bred poultry for the pleasure and recreation it affords. It diverts the mind from the heavy strain of business, affords a profitable way of employing the leisure hours, and often adds greatly to the attractiveness of the home. The expense of keeping a flock of pure-bred fowls, of from ten to a dozen breeding birds, is not much of an item, especially when so much that would otherwise go to waste from kitchen and table can be utilized as poultry food. Even where all the food has to be purchased regularly for the fowls, and such cases are very rare, the eggs and young chicks will far more than pay for it, leaving a snug little surplus with which to purchase new breeding stock from time to time, as may be required. Good breeding birds, of almost any of the pure-bred varieties now so generally bred, can be bought at from $1.50 to $5 each, according to age, sex, and quality, though it is always economy to start with a flock, however small, of *extra fine* birds, as the progeny will be more satisfactory, and if offered for sale for breeding purposes, will sell at satisfactory figures. Ten per cent of extra fine chicks is about as many as can reasonably be counted on each season, some few of the remaining birds being fair birds for ordinary breeding, and the remainder excellent for the table or market. To prove conclusively that the birds have paid well for the care and food bestowed, keep a regular debit and credit account, and it will surprise a novice with what a small flock is capable of doing when properly cared for.

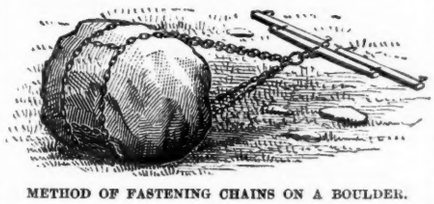
As most persons living in country towns or in the suburbs of the large cities have but a limited amount of ground, fowls must put up with but little exercise room, as a rule; and while the Brahmas and Cochins, and perhaps the Plymouth Rocks, may do well in small enclosures, under the care of a painstaking person, all fowls should have the largest possible space to roam in. Where the birds are necessarily kept in a small yard, everything should be done to make up for the loss of room and absence of a grass run, by supplying scratching material, fresh, short grass, or other green food daily, winter and summer, and by strictly adhering to cleanliness in every particular. Close confinement invites and engenders disease or disorders—lice, mites, and other parasites, which so annoy and destroy the birds. The houses, nests, etc., must have especial and frequent attention, and everything kept neat and clean. This is conducive to healthfulness, and gives the place an air of neatness.

The choice of breeds is a matter of much annoyance to the novice, who, not having any experience, is guided generally by mere chance in the selection, and not by any system of reasoning. Where mere beauty is the consideration, then some breed which is noted for that quality should be obtained, as the Polish, especially the White-crested Black variety. Where eggs are the desideratum, the White or Brown Leghorns will give satisfaction, the latter breed being very handsome in plumage when properly bred. For heavy weights, where plenty of flesh is wanted, the well-known light Brahma, or, in fact, any of the Asiatics (Brahmas and Cochins,) are the ones to choose. Where proud-bearing, and quick, active birds are wanted, the several varieties of the Games should be considered in detail, the Black-breasted Red Games being universal favorites. Where something neat, pretty, and small is desired, the Bantams "fill the bill" exactly, the preference being about equally divided on the Black-breasted Red Game Bantams, and the Silver and the Golden variety of Sebrights.

A Non-Slipping Chain for Boulders.

BY L. D. SNOOK, YATES CO., N. Y.

One great trouble in hauling boulders or large stones with team and chain is the liability of the chain to slip off, especially if the stone is nearly round. By the use of the contrivance shown in the engraving, nearly all of this trouble is avoided. It consists in passing two log chains around the stone and connecting them a few inches above the ground by a short chain or even a piece of rope or wire. Connect the chains in a similar manner near the top of the stone. The ends of the draught chains are attached to the whiffletrees in any way desired. In hauling



METHOD OF FASTENING CHAINS ON A BOULDER.

down an incline, or where the ground is very rough, it will be best to wrap each chain clear around the stone, connecting with whiffletrees by a single chain, thereby preventing a possibility of the chains becoming detached or misplaced in any way.

A Pitchfork Holder.

J. E. H., Emporia, Kansas, writes us: "Having occasion to go into the barn one night, I received a very bad wound from a pitchfork which had fallen from its standing position. This led me to construct a Holder, a sketch of which is here sent. The fork-holder is made of an inch board, of a semi-circular shape, with five holes large enough to admit a fork handle, bored near the curved side. This board is nailed to a standing post in the barn. A strap or curved bolt is placed some distance below to hold the handles in place

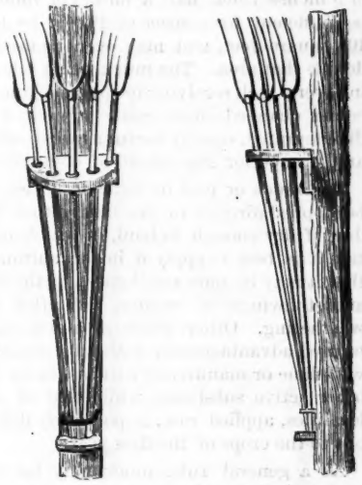


Fig. 1.—FRONT VIEW. Fig. 2.—SIDE VIEW.

as they rest on a bottom board fixed for the purpose."—Figure 1 shows the front view of the holder; figure 2 gives the side view.

Muck.—What is Muck?

In England, muck means manure. In "Pilgrim's Progress," "the man with the muck-rake" was searching for good in the gutter's filth; but not finding that for which he searched. "Muck is money," is an English farmer's proverb, the meaning of which is clear enough. When agricultural writers in America talk about *muck*, they mean swamp muck, and by this, a substance of a peaty character, rich in humus, of a dark brown or nearly black color, consisting of the remains of plants which have undergone partial decomposition under the constant influence of water. This has no constant composition or appearance other than indicated. In peat-beds, the true peat is often several feet deep, and there may be a good deal of similar material which is crumbly, more or less mixed with earth or sand, and unfit for fuel. Other deposits abound in which there is no peat fit to use as fuel, but with an abundance of other material useful to farmers, and properly enough called muck. This is black soil, at least half of which will burn away when dry. It often dries hard, like clay or bricks. It crumbles under the influence of frost and air, and often simply by drying. This substance, including all varieties of peat, is or may be made useful in every upland soil, indeed in every soil not of a peaty nature to begin with. It is often rich in nitrogen, the most costly ingredient of fertilizers, often contains phosphate of lime and other valuable ash-ingredients. By its decomposition in the soil, its absorbent action, its promotion of other decompositions and changes in the soil, its presence is always beneficial. Under some peculiar circumstances, these effects are hindered, probably by the presence of organic acids in the peat. To such peats and mucks the term "sour" is fitly applied by farmers. They may, however, be neutralized, or, so to speak, sweetened by lime. Fresh-burnt lime rapidly absorbs water, and falls into a fine dry powder. The muck is spread in layers, a few inches in thickness, and lime in this form is spread thinly over it. It is not necessary to be ac-

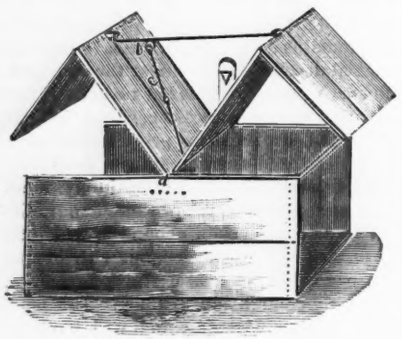
curate in regard to proportions, but best to be uniform. If the muck layer be about 4 or 5 inches thick, half a bushel of lime will be sufficient for a space of 10 feet by 10, or 100 square feet, and may even be used for double that area. The muck being piled up in layers, each receiving its quota of lime, becomes changed—more easily pulverized and disintegrated, equally useful as an absorbent, and a superior ingredient of composts.

The muck or peat of some localities may be applied directly to the land, either fresh dug, if dry enough to haul, in which condition it is best to apply it in the autumn, so that it may become ameliorated by the frosts and thawings of winter, or after such weathering. Other kinds of muck cannot be used advantageously without composting with lime or manure, or with ashes, or some other active substance, while that of some localities, applied raw, is positively deleterious to the crops of the first year.

As a general rule, muck may be made most useful in ordinary farm operations by mixing it with manure from the stable, in the cow-yard, the pig-pens, or the sheep-yards, and it is safe to say that the addition of muck of good quality in this way may easily double or triple the value of the manure made upon the farm. That is, a yard capable of furnishing, under ordinary circumstances, 100 loads of manure, may be made to furnish twice or even three times as much, both in quantity and value.

A Box-Trap for Rats.

Mr. W. H. McDonough, Allegheny Co., Pa., describes his box rat-trap, and from the



A TRAP FOR RATS.

sketch sent us, the accompanying engravings are made. The trap consists of a box $2^2/_3$ feet long, 10 inches deep, with the end and top pieces made to fit, and fastened to the box at the middle point, *d*. These ends are raised to within six inches of each other, and are held there by a hook as shown in figure 1. The hook is made of heavy wire, fastened to one "lid," and hooking into a staple in the other. From this hook, a wire runs down through a hole, into the center of the box. Figure 2 shows the form of the trigger. So soon as a rat feeds upon the bait, the ends of the trap fall, and the vermin is caught. The rat can be killed by drowning or in some other way,

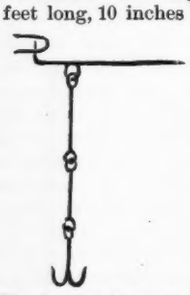


Fig. 2.—THE TRIGGER.

Ensilage and Silos.

J. P. ROBERTS, PROFESSOR OF AGRICULTURE, CORNELL UNIVERSITY.

During the past year, I have had some experience in building Silos, and in cutting and feeding Ensilage, and perhaps it may be of some value to those who intend to adopt this new method of preserving fodder. As I have formerly stated, the Silo should be long and narrow, with the long side next to the barn. If the extreme inside length were 32 feet, and the width 16 feet, there should be three cross divisions in it; this gives four compartments, 8 by 16 feet each. If the extreme depth of the Silo is 20 feet, it can be filled up 15 feet, and will settle to about 11, nearly all the settling occurring within forty eight hours. Nearly all the upper half of the Silo is for temporary use, and therefore may be constructed of rough unmatched boards. There will be wanted at most, only 12 feet of air-tight stone, or wooden wall.

Last year, I raised and ensilaged about three acres of Southern White Corn. The drouth cut it short, and there proved to be scarcely 50 tons of it. It was fed to fattening steers, milch cows, and three-fourths blood Holstein heifers, coming two years old in June and July. The three heifers selected, were an average of six that had been running in an open basement, and had been fed on hay alone. They were put into stanchions on a plank floor (for the first time,) and about two weeks afterwards, the experiment began. Each was fed daily, 50 pounds of Ensilage, and one half pound of Malt-sprouts. The weights at various times, were as follows:

	No. 1.	*No.* 2.	*No.* 3.
Feb. 24	770 pounds	650 pounds	780 pounds
Mar. 3	832 "	850 "	834 "
" 10	830 "	890 "	850 "
" 17	840 "	900 "	820 "
" 24	824 "	882 "	824 "

March 31st, 2 pounds of Cotton-seed Meal were added to each ration:

Apr. 7	890 pounds	850 pounds	840 pounds
" 14	872 "	938 "	862 "
" 22	870 "	925 "	902 "
May 1	916 "	960 "	926 "

If the weight of March 3d be taken as the most correct, it is evident that there was no such true gain, as the figures between Feb. 24th, and that date indicate, but rather an increase of the contents of the stomach, due to more palatable food—then, the increase shown is but 14 pounds for the three animals in 21 days. It is evident that this ration was very close to a maintenance one, as it was meant to be. The analysis of the Ensilage, as well as all the other foods experimented with during the last year, has now been made. The gain in the last 23 days, when the two pounds of Cotton-seed meal were added, was 222 lbs., while in the interim of 14 days, from Mar. 24, to Apr. 7, the gain was 50 pounds. Without doubt, this last gain was largely made during the first seven days of April, when the meal was fed. From the above, may not the following conclusions be drawn? That Southern Ensilaged corn will maintain young animals, but that it is better economy to add to it some food rich in albuminoids. The heifers, fed as above, came through the winter looking far better than the three of the same age fed on hay, and have done much better this spring since they went to pasture.

In February we had two aged cows go dry, and one heifer; they were then low in flesh, having been milked over a year. With feeding stuffs, ranging from $35.00, to $40.00 per ton, they could not be sold at an average of more than $25.00. I determined to feed them. They weighed as follows:

	Heifer.	*No.* 1.	*No.* 2.
Feb. 21	1150 pounds	1000 pounds	980 pounds
Apr. 20	1320 "	1150 "	1070 "
Selling price	$65.74	$50.00	$49.97

They were fed 52 pounds of Ensilage, and 8 quarts of Corn-meal each, per day, until April 5th, when two quarts of Cotton-seed Meal were substituted for two quarts of Corn-meal. The best results in feeding for milk was, when Ensilage was fed in connection with about 2 pounds Corn-meal, 2 pounds Bran, and 3 pounds Cotton-seed Meal,

The experiments with the steers are too lengthy for insertion here, and I pass to what I have been doing more recently.

On the 16th and 17th of June, I put into one of our Silos (11 by 16, and 28 feet deep,) three acres of Rye, and 1½ acre of Clover; one load of Clover was sandwiched between two loads of Rye. The fuel was 1½ cord of 2 foot wood; the engineer a 16-year old student; one man in the Silo the first day, two the second; seven men and two teams to cut, haul, and feed the material. The Rye averaged fully $6^1/_2$ feet in hight, and grew on the ground where the Ensilage Corn grew last year, which is already again planted to Ensilage corn. The Clover was heavy, and together they filled 22 feet of the Silo. It settled six feet in forty-eight hours, and appears to be about done. This, at 45 pounds to the cubic foot, gives 63 tons. The pressure is secured by about three tons of stone piled at the corners, and a screw, anchored in the bottom of the silo, made of two sections of $1^1/_4$-inch square iron; the third section, round, four feet of it having threads cut, five to the inch. Two 8-inch timbers are laid lengthwise about four feet apart; short blocks upon these form a sure foundation for the circular, cast-iron cap, upon which the nut turns. Notwithstanding all that has been said against the rod pressure, I like it. The Silo was covered, weighted, and screwed down within a half hour from the time the cutter stopped, and less than two hours labor of one man has been spent since, in turning down the screw; ten minutes will unseal it.

The reader, who is balancing the pros and cons of Ensilage in his mind, is without doubt still undecided, but I think I have given data, from which a better understanding may be reached. It is utterly impossible for anyone to make others' circumstances similar to his own, but it may not be unprofitable to enumerate the various items of cost, etc. First, we have a stationary engine for threshing—a horse power may be used. The Silos of 150 tons capacity together, cost about $300. The cutter cost $100, but we need one for other use. Two of the men employed, cost $1 per day; seven men $1.25 per day, and one man, $1.75 per day. The teams are worth very little to us about that time of year, and their labor is light. There is a little charge to be made for the use of tools and implements. The three acres of Rye had a dressing of 15 loads of farm manure, worth to us, $15. Perhaps half of this should be charged to the succeeding Corn crop.

What it will cost A or B to raise three

acres of Rye, I cannot say, nor what 1½ acre of Clover is worth; the second growth will probably be heavier than the first. From September until next June, I shall have ready sale for about 5,000 quarts of milk per month, at five cents per quart. If the drouth comes, it is difficult to produce it, for the more cows one purchases, the more the evil is aggravated; but with Ensilage, cows can be kept from flies, out of the sun, fed in the stables, and turned out at night.

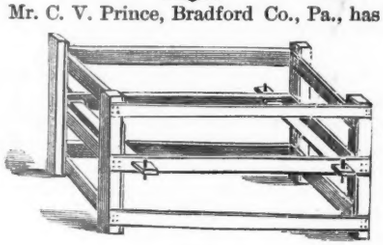
I believe the greatest utility of Silos will be found to consist in the means they furnish of preserving forage plants, in a green and palatable state, which may be easily grown in abundance in May and June, but if not then secured, they would become dried up and nearly worthless, or, if dried and housed, the animals appear to have but little relish for them in the hot, dry days of August. The reasons for building Silos with small compartments are manifold: a small compartment may be filled and sealed up in a single day, thereby not seriously interfering with the regular work. Each forage plant may be taken when in its best condition. One compartment may be filled early with Rye and Clover, which is showing a tendency to spoil by lodging, or is full of weeds that it is desirable to eradicate: a second with Oats and a second cutting of the former Clover field, or a weedy, belated piece of Timothy. A piece of fodder corn and aftermath would fill a third compartment later in the season.

If the compartments are small, they may be uncovered entirely and fed from the top, and if not all consumed, they can be filled up with new material; or, if one or more compartments are entirely emptied, they may be refilled in September, thus securing a two-fold benefit from them. From my experience, I judge that a compartment not entirely emptied in the spring, if disturbed only on the top, would sustain little loss until June if re-sealed, or it might be left open, and daily a little of that exposed to the air, fed to the horses as cut feed. Our horses, thus fed last winter, relished it very much.

There are many problems in regard to Ensilage, that are still unsolved; but should everything be found favorable to the new method, there are still men who would have no more use for a Silo, than for a trotting-horse. There are men having so little energy and skill, that should you give them the best herd of Shorthorns, they would have little better than scrubs in ten years. Under certain conditions, the new method, I believe, can be adopted with profitable results; but he who rushes thoughtlessly into it, will find, I fear, that Ensilage is too "Frenchy," unless mixed with a liberal allowance of brains.

A Pen for a Sheep.

Mr. C. V. Prince, Bradford Co., Pa., has a

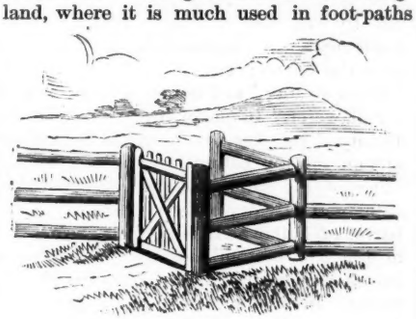


SHEEP PEN.

convenient pen for sheep and young lambs that require extra care; those that will not own their lambs, etc. It may be put on the barn floor or in any other desired place, and when not in use, can be laid away in a compact manner. Take three boards, 6 feet long and 6 inches wide, for the sides of the pen; nail these on an upright piece 3 feet long, 6 inches apart, letting the piece run down 6 inches below the bottom board. Make the ends in the same manner, only have the boards 4 feet long. Cut a mortise 3 inches long by 1 inch wide, 8 inches from each end of the middle side board. Set the ends of the pen *inside* of the upright piece of the sides; cut slats that will fill mortises, and pass them through the inside ends of the pen. Put pins on the outside of the sides, to hold together, and a convenient place to keep sheep is made.

A Gate for a Foot-Path.

Mr. Wm. Lester, Rockingham Co., N. H., sends us a sketch and description of a gate. He writes: "This gate is common in England, where it is much used in foot-paths



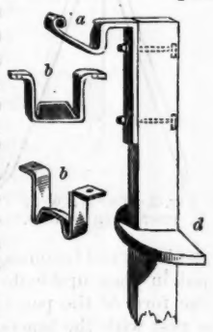
A GATE FOR FOOT-PATH.

across fields, etc. Where careless people might otherwise leave openings for stock to get into cultivated fields, or stray away; I have three of these gates on my place, and no animal has ever found its way through them. It is an ordinary small gate, which swings between two posts, set far enough apart to permit the passage of a person. These two posts are the two ends of a **V**-shaped end in the fence."—The engraving shows the construction of the end of the fence, with the two posts, between which the gate swings.

The Origin of Blue-Grass.—According to the story of a Plainfield, Ind., paper, now going the rounds of the journals, "the Blue-Grass, now so famous in Kentucky, was first raised in Indiana, at a little burgh called Miami Village, on White River, in Hamilton Co." Some Indians, in 1781, captured two boys, Conner by name, in Western Pennsylvania, and took them to the village aforesaid. In due time the boys became "big Injuns," and it is through John, the Plainfield paper learns, that "Blue-Grass was a native of what is now Hamilton." It was Gen. Harrison's army that took the grass from Hamilton Co., Ind., to Kentucky, where it spread rapidly. The writer of that article, and those who quote it, do not seem to be aware that Blue-Grass (*Poa pratensis,*) is a native of the north-temperate parts of both continents, and so far from being confined to Hamilton Co., Ind., is a native of a great many places, from Pennsylvania, northward. It finds specially favorable conditions in Kentucky, and in that State developes so luxuriantly that the grass was for a time supposed to be peculiar to it, and received the name "Kentucky Blue-Grass." It is now well known that this grass is only the old "June," "Spear," or "Green Meadow-grass." That the grass may have been taken from Indiana to Kentucky is possible, but that this throws any light upon the "Origin of Blue-Grass," is simply nonsense.

Self-acting Barn-Door Fastener.

Mr. C. Terrell, Cuyhoga Co., Ohio, thus describes his barn-door catch: The pole, which must not be too heavy, slides loosely up and down through the cleats, *d*, (only the upper one of which is shown). The catch, *a*, of stiff bar-iron, rises on and hooks over the inclined plane of the staple, *b*, also made of bar-iron, and bolted in the lintel. A hole in the floor receives the lower end of the pole in the usual manner. This is a self-fastening arrangement for swing-doors, and may be applied to each door separately. Put on axle or other grease, to prevent friction, until the parts have become smooth.



PARTS OF DOOR FASTENER.

A Cedar Stem Soil Stirrer.

A convenient and quickly made implement for stirring and mixing manure and fertilizers with the soil, may be made as follows: A cedar stem is cut (one about eight feet long is most satisfactory) and the branches cut off several inches from the stem, leaving long spurs on all sides for its whole length.

A STIRRER MADE OF A CEDAR STEM.

A horse is hitched by a chain to the butt end, and the driver guides the implement by a rope fastened to the rear end of the stem. By means of the guide rope, the implement may be lifted over or around obstacles, and turned at the end of the field. Such an implement is specially useful in mixing fertilizers with the soil, when applied in drills for hoed crops.

A Portable Texas Fence.

Mr. A. Baseke, Montgomery Co., Texas, sends us a sketch of a portable fence of his own

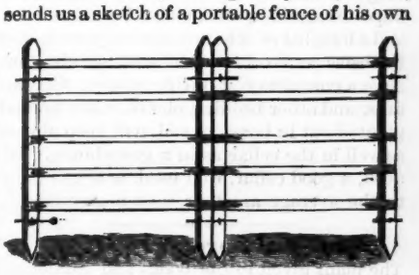


Fig. 1.—PANEL OF PORTABLE FENCE.

construction. The posts are 5½ feet long, 2 by 3 inches thick, pointed on both ends. The rails or slats are 8 feet long. He writes: "Lay the posts parallel, 8 feet apart on the ground, and nail the slats on, the upper and

lower 3 inches from the ends, the middle slats as far apart as desired; raise the panel up, and bring it in line. Drive two oak pegs in the two 1-inch holes, which are about 9 inches from each end in the post; these ought to be bored in before the slats are nailed on. Set the posts in the ground down to the lower rail, and then drive the braces firmly in the ground, and nail them with one eight or tenpenny nail to the post. I claim for his fence that one man can put it up or down in a short time; that it will be more firm than a fence with posts; and if the lower end becomes rotten, the post can be put in place upside down."—Figure 1 shows the form of the panels, and an end view of a post with the braces is shown in figure 2.

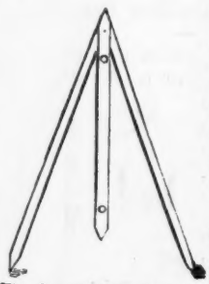


Fig. 2.—END VIEW OF A POST WITH BRACES.

The Uses of the Cellar.

Every one knows the importance of a good cellar in preserving vegetables, but to those who grow flowers it is of equal value in keeping plants not used as food. There are many things which can be kept through the winter, in a state of suspended animation, so to speak, provided they do not actually freeze or become killing dry. "There," said a gentleman whose place is one of the many near Boston, well worth visiting—"there is the most valuable structure of the whole." To go from one part of the grounds to another, on high land, a bridge was needed. Two heavy walls were built of stone; a roof of timbers was made and covered with earth. This gave both a bridge and an above-ground cellar, a spacious one too, in which tender and half hardy plants, so largely used in the decoration of the grounds, were kept during winter. Most persons will, however, content themselves with a house-cellar, and there is more danger usually that it will be too warm, rather than too cold. The temperature should be kept as near 40° as possible. Light, if admitted at all, should be but little, at most a sort of twilight, for we do not wish the plants to grow, but to keep in a state of complete rest. It will not do to utterly neglect the plants thus stored. They will need very little water, but, especially towards spring, must have enough to sustain life. In such a cellar may be kept those shrubs that are just on the verge of hardiness. The variegated Hollies, Cape Jessamines, Oleanders, Pomegranates, and a long list of other evergreen plants; also Fuchsias and other deciduous shrubs that have a complete rest during winter. Geraniums, and other bedding plants, taken up and planted out in boxes of soil, will keep almost as well in the cellar as in a greenhouse. Indeed, a good cellar, well used, is worth more to the average amateur than a greenhouse.

What are Sprouts?—"H. B. D." The plant given in the books and catalogues as Kale and Borecole, is called "Sprouts" by gardeners and market-men in and around New York. This name is probably local, and is given especially to a variety also known as "Dwarf German Greens." It should be sown this month in rows 15 or 18 inches apart. When large enough, thin plants to 6 inches, and keep them clear of weeds. Near New York, covering in winter is not necessary, but in a more severe climate, a light covering of salt-hay or of straw is given. As soon as the ground can be worked in spring, the soil around the plants is loosened by a hoeing. The crop is cut up and marketed early in May. Seedsmen generally have the seeds of the Kale or "Sprouts."

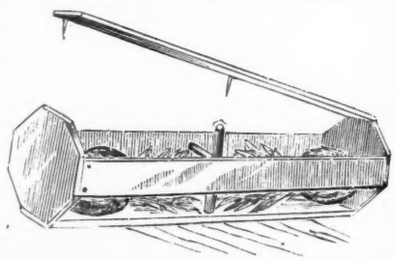
Keeping Apples.—An Experiment.

"W. J. R.," Allegheny Co., Pa., writes us that he has tried the various methods we have given in former years, for keeping apples for winter use, and thinks that the results of none of these will compare with some from his experiments in the fall of 1880, which he gives as follows "for the benefit of the many readers of the *American Agriculturist*":

About the end of October, 1880, I put up seven barrels of apples. Five of them I intended to keep for an experiment and consequently was very careful in packing them. Each apple was examined before putting it into the barrel; two of the barrels were "Rome Beauty," and the other three were of "Fallawater." In one of the barrels of Rome Beauty I put dry oak leaves in the bottom and on the top before heading up. In the other of the same variety I put nothing, using perfectly dry barrels for each. In one barrel of Fallawaters I used dry oak leaves at top and bottom, and also put layers of leaves among the apples all through the barrel. In another barrel of the same kind I used paper instead of leaves, putting in a layer of apples, then covering with a newspaper, and so on alternately, until the barrel was full. In packing the last barrel of Fallawaters, I wrapped each apple in paper, the same as oranges are wrapped, and then packed them loosely in the barrel. In all the barrels I bored holes in top and bottom, for the free admission of air, and then stored them in my cellar, laying them on their sides, being careful to keep them in as cool a place as was safe from frost. In April of the following spring, I opened the two barrels of Rome Beauty, and found the one with the leaves to be in much the best condition, yet not altogether satisfactory. On the first of May I opened the barrel of Fallawaters that was packed with leaves. It was in bad condition, nearly one-half being rotten. On the fifth of May I opened the other two barrels. That which had the paper between the layers of apples was in bad condition, but not so many were decayed as in the barrel with leaves; the last one, with each apple wrapped in paper, was in most excellent condition; there were only twenty specked and rotten apples in the whole barrel, while the color was beautifully preserved and the apples had a delicious flavor. They were fresh and beautiful in appearance, without any dampness or moisture. A gentleman present when the barrel was opened pronounced them the best kept apples he had ever seen. The success seemed to be due to the fact that the paper absorbed all the moisture that was given off the apples, while the holes in the top and bottom allowed the free circulation of air. As to the other barrel, in which paper was spread in layers, this prevented the free passage of air among the fruit, and the dampness was retained in the barrel, thereby causing the apples to decay more rapidly.

Living Plants by Mail.

The Englishman never mails his letters, he always "posts" them. So in sending living plants, he does not forward them by mail, but by post. With plants in a state of rest, there is little difficulty in sending them by mail; all we have to look out for is too great dryness, such as will destroy vitality, and too much heat, which may start them into growth. Those plants with large and fleshy roots or root-stocks, if they have an excess of leaves removed, will remain for a long time in a package without injury, provided they do not dry out. Geraniums and other plants with large and strong stems, carry very well, especially if they have been hardened off somewhat, so that the growing part is not too succulent. But it is sometimes necessary to send living plants which have no fleshy roots, and the stems of which, whether above ground or below ground, in the form of root-stocks, are so slender, that if they once receive a severe check, do not recover. With such plants, the best we can do is to put them as nearly as possible in a state of suspended animation, and in the condition of a plant that has been badly neglected. A neighbor of ours received a few days ago several choice Violets from England, packed in a manner which brought them to hand in as good a condition as could be expected. The roots of the plants were surrounded by damp (not wet) moss, which was inclosed in sheet gutta-percha or water-



proof paper. The plants thus prepared were then fastened in small crates, two in each, like that shown in the engraving. The crate is 9 inches long, and 2¾ inches square at the ends. Two pieces are placed in the middle, to prevent crushing, a precaution hardly necessary. The plants were so tied to the slats of the crate that they could not shake about and be bruised, and the whole covered with strong paper. The plants in such a package have all their wants fairly supplied, except light, and, save that the leaves were much blanched, came to hand in very satisfactory condition. The crates weighed 4½ ounces, and are needlessly heavy, and we have no doubt some of our ingenious readers will improve upon this method, which is the best we have seen yet for sending living plants across the ocean, or on long journeys by land, in the mail or post.

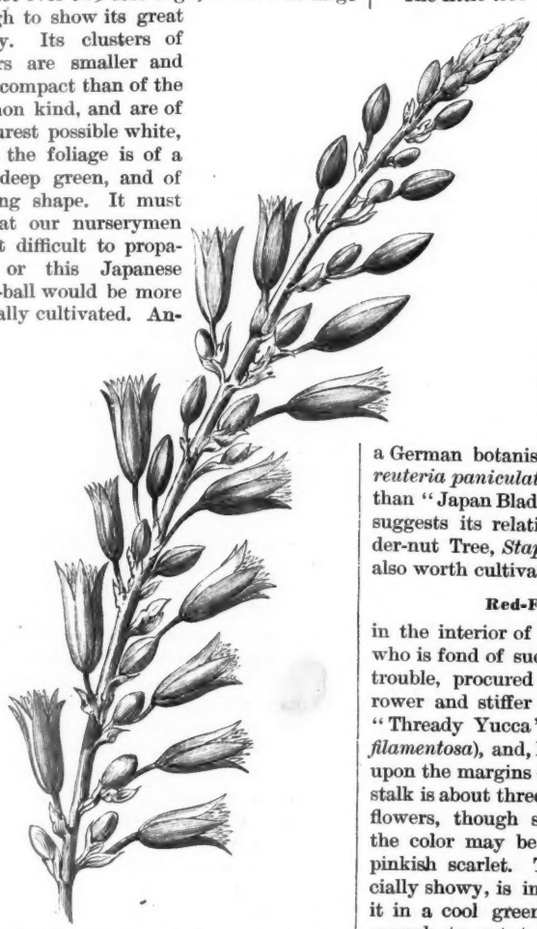
Annual Larkspurs appear to have gone out of fashion. Many years ago beds of them were quite common; in variety of color and somewhat in form, the flower-spikes resemble those of the Hyacinths, while costing very little. The kind known as "Dwarf Rocket" is best, and to have it in perfection, the seeds should be sown in autumn, and the plants must not be transplanted. But few annual plants make such a brilliant show as this, if thus treated.

Notes from the Pines.

A fine shrub takes up no more room than a poor one, and, as a general thing, costs but little more at the start. Did people only know of the existence of many choice shrubs, what a difference would not only the grounds of large places, but the ordinary front yards of our villages present! As it is, the shrubs in one yard are for the most part the counterpart of those in the next yard; the village nurseryman naturally recommending those things of which he has the largest stock, and these will be, of course, of kinds most readily propagated. The number of really fine shrubs is now very large, and one has only to give proper care to the selection to have them in flower from earliest spring until frost comes. Among the shrubs of comparatively recent introduction in this country, I know of none more valuable than

The Japanese Snow-Ball.

The old Snow-Ball (*Viburnum Opulus*) is a pleasing shrub, but it is vastly inferior to the species from Japan (*Viburnum plicatum*), in habit of plant, in foliage, and in flower. I well remember the enthusiasm of an old gardener over the plant when it first came out. Indeed I think that his plant was the first brought to this country. "Look at it," said he; "it has a majesty of its own, and all common shrubs must stand aside." The plant over which he was so much pleased was not over two feet high, but it was large enough to show its great beauty. Its clusters of flowers are smaller and more compact than of the common kind, and are of the purest possible white, while the foliage is of a very deep green, and of pleasing shape. It must be that our nurserymen find it difficult to propagate, or this Japanese Snow-ball would be more generally cultivated. An-

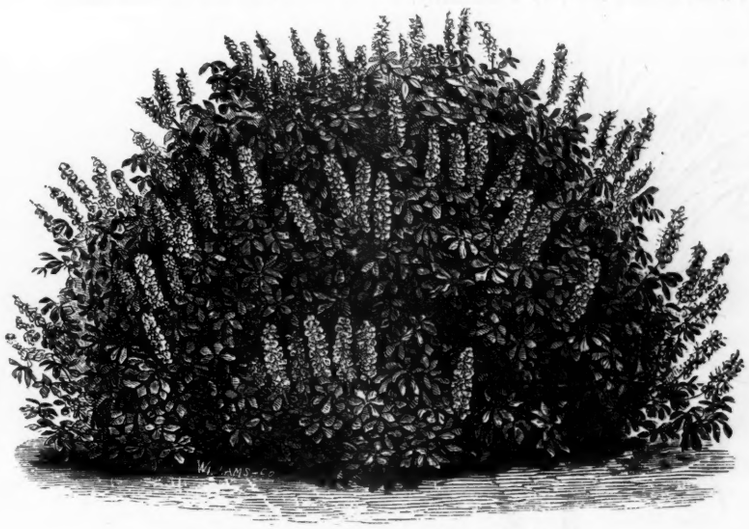


THE RED-FLOWERED YUCCA (*Flowers of real size*).

other shrub that should be better known is

The Dwarf Horse-Chestnut,

(*Æsculus parviflora*), also called Dwarf Buckeye. This should be planted where it can have ample room, as it will spread and form a large clump. When loaded with its long spikes of white flowers, it is really beautiful,



THE DWARF HORSE-CHESTNUT (*Æsculus parviflora*).

and it blooms in mid-summer, a time when flowering shrubs are scarce. Years ago the *American Agriculturist* gave an engraving of

The Japan Bladder-Nut.

The little tree that then furnished its first flowers for the artist, is now 20 feet or more high, and yearly increases in beauty as well as in size. Its finely-cut dark-green foliage is light and pleasing, and in the middle of July its large panicles of lemon-yellow flowers make it very showy. More than this, it is very ornamental in fruit. It has large clusters of bladdery pods, which, though usually pale-green, are sometimes tinged with pink, and in autumn have a most pleasing effect. The tree has a botanical name, given it in honor of a German botanist, "Kœlreuter," and *Kœlreuteria paniculata* is to many more difficult than "Japan Bladder-nut Tree," a name that suggests its relationship to our native Bladder-nut Tree, *Staphylea trifoliata*, which is also worth cultivating....Having heard of a

Red-Flowered Yucca

in the interior of Texas, one of my friends, who is fond of such plants, has, after much trouble, procured it. The foliage is narrower and stiffer than that of the common "Thready Yucca" or "Bear-Grass" (*Yucca filamentosa*), and, like that, has loose threads upon the margins of the leaves. The flower-stalk is about three feet high; the individual flowers, though small, are numerous, and the color may be described as a very pale pinkish scarlet. The plant, while not especially showy, is interesting. My friend has it in a cool greenhouse, not having stock enough to yet test its hardiness. A few flowers are sent, that you may make a drawing, to show their shape. If you imagine a branched spike, about two feet long, clothed with such flowers, you will get an idea of the much talked of Red-flowered Yucca. It is not strictly a *Yucca*, its proper botanical name being *Hesperăloë yuccæfolia*....Among the recently introduced hardy plants that are destined to become popular, are the

Double Pyrethrums.

I see that you not long ago gave an engraving of one of the Insect Powder Pyrethrums, which, except in color, is much like an Ox-eye Daisy. The double ones, of which there are many named varieties, have much the appearance of a China Aster. But unlike that, they are hardy perennial plants, beginning to bloom in June, and continuing for a long time. The colors range from white, through many shades, to crimson, with variegated forms....Plants that are much lauded abroad are so often a failure in our very different climate, that it is pleasant to note a success. Much had been said in praise of

The New Bedding Violets,

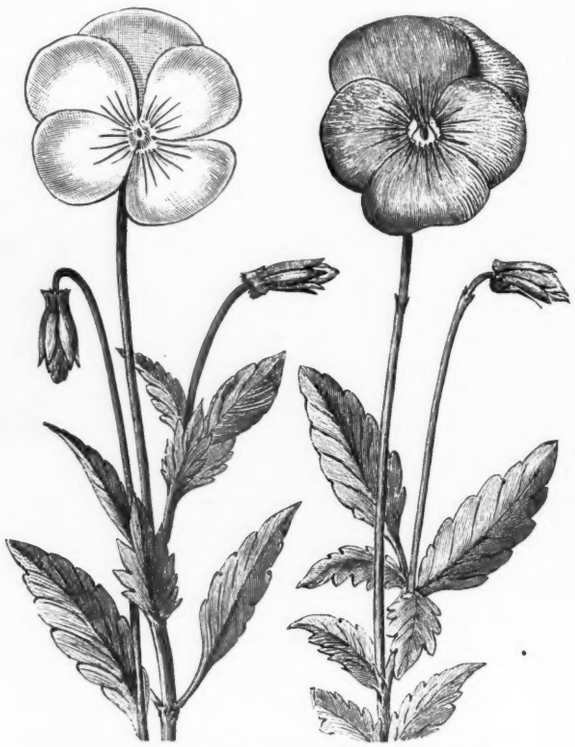
as they are called. It is claimed that these are hybrids between the well known *Viola cornuta* and the common Pansy. At any rate, they seem to have the continuous blooming character of the former, and show a considerable variety in their color, which may be due to the Pansy. They range in color from whites and yellows to a deep violet, and many are strikingly variegated, and have a pleasant but not strong fragrance. The plants have stood up well, and kept in continuous and abundant bloom from April until August, and thus far promise to be valuable in our climate, so trying in summer upon all violets, save some natives.... The other day, on going to a part of the garden I had not visited recently, I saw at a little distance a mass of bright red that I did not at first recognize. Upon approaching it, I found it to be the showing bloom of the old

Bee Balm, or Oswego Tea,

a large clump which I had forgotten. It makes such a brilliant mass of scarlet, it is a pity that it is a native plant, a perfectly hardy one, that can be grown without trouble. If it were only a tender, "miffy" thing, and sold at a dollar for a plant, in a little pot, how popular it would be! But stick it anywhere, and it will grow; hence like many other beautiful native plants, it is a rarity in gardens. Besides the names above given, it is also called "Red Balm," "Crim-

son Balm," and in some parts of the country, "Bergamot," the last name being one often given to several aromatic plants. The botanical name is *Monarda didyma*, and it grows wild, though not very abundantly, in all the Northern States. It continues long in bloom, and is a really good hardy plant.

THE CRIMSON BALM (*Monarda didyma*).



TWO NEW BEDDING VIOLETS.—(*See previous page.*)

Ferns for the Dwelling.

Americans visiting Covent Garden Market, the great flower-mart of London, will be surprised at the large number of Ferns in pots on sale, and may wonder if there be a demand for them. If he walks through some of the streets of residences in that city, he will see at nearly every window on the lower floor either a window-box well filled with Ferns, or several pots of them, all in apparently good condition. If interested in such matters, he will wonder why we have so few Ferns in window culture in this country. In the London atmosphere, with its "blacks," so proverbially unsuited to plant growth of all kinds, are Ferns growing in full vigor. The trouble is in our manner of heating our houses. Where anthracite coal is the chief fuel, plant culture of all kinds is difficult, and that of Ferns especially. Even in those localities where bituminous coal is burned, the atmosphere is rarely suited to Fern-growing. England being an island, has of course the advantage of us in its generally moist atmosphere. In spite of our unfavorable natural conditions, rendered worse by our methods of heating, no doubt that by proper care in selection, much more may be done in Fern culture than is generally supposed possible. Not much can be done with our native Ferns in house culture, because so few are evergreen, and they die down just when wanted. Still, the most suitable exotic Ferns for house culture now cost but very little. Among those found most successful is *Pteris serrulata*, a delicately-cut, dark green species. The variegated *Pteris quadriaurita*, var. *argyrea*, is very handsome, and has done well in room culture. Some of the beautiful Maiden-hair Ferns, especially *Adiantum cuneatum*, do well in England, and should be tried here. *Davallia bullata*, the Fern of which the Japanese make curious forms, as described elsewhere, is said to succeed in hanging baskets, and *Dicksonia antarctica* has succeeded as a window plant. One of the most common of our native evergreen Ferns, after Polypody, is *Aspidium acrostichoides*, not very delicate in outline, but of a good color, and a robust plant. We have not known it in window culture, but have no doubt it would succeed. This and others among our native evergreen species should be tested in the house by those interested in these plants. They should be taken up and potted at once, in order that they may become well established before taking them in-doors, and the change from the open air made as gradually as possible.

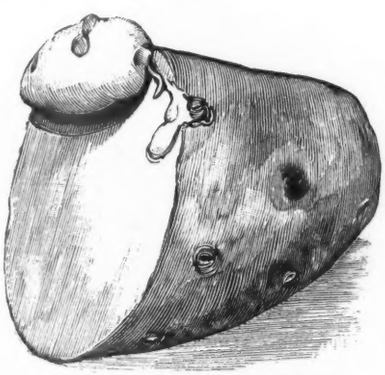
Grasses for Winter Decoration.

It would surprise our readers, could we give the money value of the dried grasses annually imported from Europe for the decoration of American homes in winter. Some of these imported grasses are well enough, but others, which come over in such unnatural colors, being dyed orange, scarlet, and even black, had better be left at home. It seems quite wrong that a large sum of money should go out of the country for these dried grasses, when every one of them could be grown in one or another portion of our wide domain. The readers of the *American Agriculturist* mostly live in the country, and of those who do not, the majority make an annual visit there, and all can, by taking a little forethought, provide themselves with grasses quite as useful for winter decoration as those that come from any other country.

Grasses, as decorative plants, are valued, not for their color, but for beauty of form. Those who wish to collect them for winter use, must observe two points: To gather them when they first come into flower; and, to dry them in a natural position. The time of gathering is especially important, as most grasses, if collected when approaching ripeness, fall apart in a most annoying manner, and by "making a litter," are a source of annoyance rather than of pleasure. It is not necessary to specify the kind to be gathered. Take whatever appears to be pleasing now, and it will be quite as much so when dried. Watch the grasses, and when they seem to be in perfection, cut them. There are some species, not especially graceful, that may be tied in small bunches, and hung up in a shady place to dry. Others, with a graceful, drooping character, if thus treated, will be spoiled. If hung up to dry, their branches will be reversed, and in drying, lose their pleasing habit. Such should be dried in their natural position. One way of doing this is, to have a box, or boxes, of dry sand, and insert the stems in this, either singly or in small clusters, while drying. If sand is not available, any ingenious person can contrive some other method of holding them in the proper upright position. The drying is best done in an airy, shaded place, as direct sunlight may fade them. After drying, they may be spread, or placed in shallow boxes, but not too many upon one another, until wanted for making up. Some works give directions for dyeing, bronzing, and otherwise making grasses unlike themselves, to all of which we object. The only allowable treatment, to our notion, is to use a dye to restore the green color that faded in drying.

New Potatoes from Old.

Nearly every summer there are sent to us specimens of old potatoes, within which are newly-formed tubers, sometimes a mass of them, each of the size of a pea and upwards. A specimen from Isaac Hagaman, Esq., New Haven Co., Conn., in July last, is of more than usual interest, as it clearly shows the real character of this unusual development. For an old potato to bear new ones upon its exterior is a rather common occurrence; it is their production within the substance of the tuber that attracts the attention of those who meet with them. In order to understand the nature of this phenomenon, we must see that the potato, the tuber, though often regarded as a root, is really a stem developed in a peculiar manner, to serve a particular purpose. When a potato is exposed to the proper temperature, the buds or "eyes" start into life, and produce stems or "sprouts." If this takes place in partial darkness, the shoots will often grow to the length of several feet, while the tuber, having given up its contents to support this growth, will be shrivelled and exhausted. If this growth takes place in contact with the soil, roots are formed at the base of the shoots, and each one becomes an independent plant. In this case it is plain that the contents of the tuber, the starch, etc., have been transformed into stems, often with imperfect leaves upon them. By proper management, the growth, instead of appearing as long, weak sprouts, may be made to develop as tubers or small potatoes, a method sometimes resorted to by gardeners to produce new potatoes in winter. Potatoes of the previous year's growth are kept through the summer in a cool cellar, all shoots being removed as they appear. In autumn, the potatoes are placed in boxes in layers, alternating with five or six inches of garden soil. The boxes are closed, and placed where the temperature averages 60°. In about three months, the old potatoes thus treated will be found to have formed a crop of new ones,



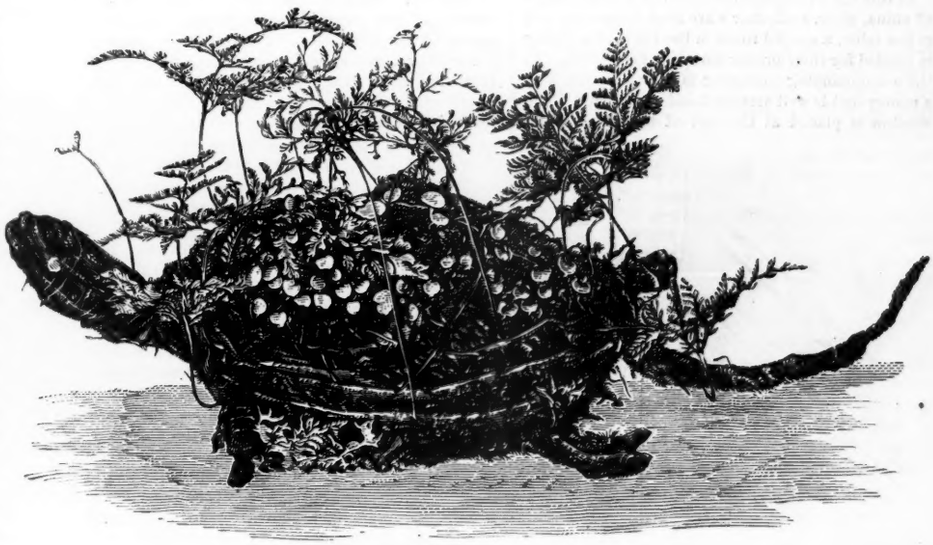
NEW POTATOES WITHIN AN OLD ONE.

their contents being transferred to the young tubers without the aid of leaves. This method was formerly employed in England for producing new potatoes in winter, but they are so much inferior to those raised in forcing-houses, that it is but little followed at present. The production of new potatoes on the outside of the old ones is easily understood, but when they make their appearance on the interior of the old tuber, it naturally causes surprise. The engraving shows one-half of the specimen referred to, the new tuber having broken through the skin of the old one, was partly exposed, and thus attracted attention. In all the specimens we have seen, the skin of the old potato was very dry and tough. When the conditions are such as to excite vegetation, and the eye begins to form a new tuber, the young growth finds less resistance from the soft, starchy mass of the interior of the old one, and being unable to break through the toughened dry skin, naturally pushed inwards instead of outwards. In the specimen a very small tuber, just forming and pushing inward, was discovered, and is shown at the right hand of the larger young tuber. As the buds on a stem are the points of growth, each bud being the seat of a special vitality, the same may be said of the "eyes" of the potato; they are really buds, and the points at which growth is active, while the rest of the tuber is essentially a mere mass of material to be used by these buds; under some conditions this nutriment is built up into stems and leaves; but when the surroundings are not favorable for this, then the growth expends itself in forming other and smaller tubers. If possible, these small tubers are found on the surface of the old one; but if the skin of that is hard and dry, the young tuber grows in the direction of the least resistance, which in the cases cited is towards the interior of the old potato.

Living Succotash.—"A. W." writes us that his Lima Beans being planted near some tall Sweet Corn, the vines seemed to prefer the corn-stalks, and would run upon them in preference to the poles that had been provided. He asks if it would not be a good plan to plant the two together, and allow the vines to run upon the corn-stalks in place of poles. There are several objections to doing this, and nothing in its favor. Lima Beans are usually perverse in their ways, and if corn-stalks were provided as supports, would no doubt avoid them, as they often do the poles, and in any case they would at first need to be trained to their support.

Japanese Horticultural Devices.

A most interesting corner in that wonderful Centennial Exhibition, was the Japanese Garden. One who had lived many years in Japan, informed us that this was an exact reproduction of the gardens to be seen in the towns and cities of that country, where the prevailing style is to produce as great a variety as possible, in a small space. In this little garden there was a "lake," that must have held at least a barrel or two of water, with various aquatic plants. A rock-work was near by, the whole of which could have been taken off in a wheelbarrow. Then there were forest trees, three or four of them, some said to be a century or more old, but they had been dwarfed to bring their roots within the compass of a good sized pot. There were curious sculptures in stone, and various other matters peculiar to the ornamentation of Japanese gardens. Last spring a Japanese friend made us acquainted with a horticultural device of the gardeners of his country, which we did not see at the Centennial. A very pretty Japanese fern, *Davallia bullata*, has slender, scaly, root-stocks, the size of a goose-quill or smaller, and two feet or more long. These long slender stems the Japanese gardeners make up in a great variety of forms, putting with them moss, fine roots, or other material that will hold moisture. Wreaths, squares, diamonds, and other shapes are made up of these stems, and some moisture retaining material, and are hung up in the houses, or in shady places in their little gardens. If kept properly moistened, these stems soon produce fronds, very beautifully cut "fern-leaves," three to five inches high, and soon form a beautiful living wreath. Some of the devices brought by our friend are rather grotesque. Tortoises are made of a frame-work of the same stems, with a filling of the material to hold moisture. There are besides figures of large lizards, buffaloes, deer, horses, etc. While these attempts to represent animal forms may meet the Japanese taste, we do not regard them as pleasing as the wreaths, and other shapes. When the fern fronds have grown abundantly, the form of the animal, which is sufficiently plain when represented by the naked stems only, is not very distinct, indeed nearly lost.



A FERN TURTLE—INTRODUCED FROM JAPAN.

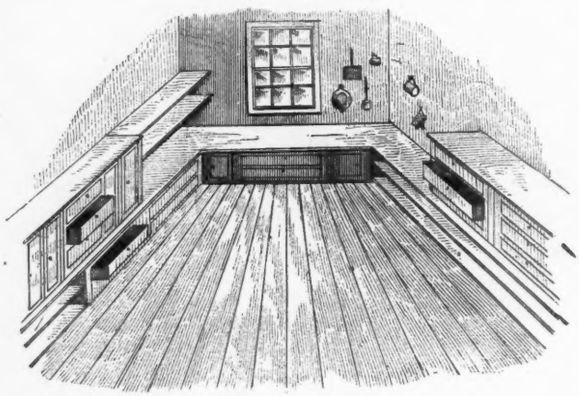
THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

A Well-arranged Pantry.

BY L. D. SNOOK, YATES CO., N. Y.

In this age of multitudinous articles in the shape of china, glass, and other ware used in cooking and at the table, a special room in the form of a pantry is needed for their proper care and protection. In the accompanying engraving is shown a portion of a pantry that is well arranged and convenient. The window is placed at the end of the room, while



A COMMODIOUS AND WELL-ARRANGED PANTRY.

around three sides is put a shelf, thirty inches in hight, and from fifteen to twenty inches wide. Beneath this shelf are placed drawers, cupboards, shelves, etc. The shelf situated in the end of the pantry is left unobstructed for cutting meat, bread, mixing pastry, and even for washing dishes. It will be found the most convenient and most used part of the whole room, being near the light, and with plenty of space. At either side of the pantry are arranged other cupboards, shelves, drawers, etc., in any manner thought most convenient, and are used for holding table linen, glassware, china, silver, etc., while those near the floor are for kettles, pans, pails, and other coarse kitchen ware. Some may think ten or a dozen drawers are far too many for one pantry, but in practice, more, instead of a less number, could be economically used. It is best to furnish some of the drawers with locks and keys, that they may be securely fastened when desired. Paint the wood-work in some light color; it is better to simply oil the top of the shelf near the window with raw Linseed oil, as it is much used, and paint soon wears off.

Over-work at School.

BY FAITH ROCHESTER.

Words of warning still seem to be needed, lest children be done to death in the process commonly called education. The brightest ones are in the most danger, though parents and teachers seldom seem to be aware of this. "It is no task for him to get his lessons," they say. "She learns so easily, she can take another study as well as not." But brain work still is *work*, though done with pleasure. Some play uses up vitality, and the best beloved occupation may exhaust the nervous force, if too long continued. There is no more sad but truthful application of the old saying, "Haste makes waste," than in the crowding forward of children at school, especially the bright ones.

Within the last year I have seen some sad cases of breaking down among school children, and there are other bright young minds and bodies within my range of observation for whom trouble surely waits, unless preventive measures be taken very soon. The little boy delights his parents and teachers by his readiness in learning his lessons, and he is rapidly promoted from one grade to another, becoming more and more ambitious as he sees the pride of his parents and the pleasure of his teachers. Nature makes frequent protests, but these pass unheeded. The boy grows nervous, has impaired digestion and circulation, for Nature is saying as plainly as possible, "I cannot give this boy the good, healthy body that he needs, if you persist in letting the brain use up all his nervous force or vital energy. He cannot eat his cake and keep it too. There are limits to his constitutional vigor. If you persist in over-drawing upon this capital invested in him, he must break down."

Very few teachers and parents understand Nature's language. They do not know that cold feet, constipated bowels, or catarrhal symptoms, may result from over-study, as much as do headache or brain disease of any kind. But children would not so soon break down if their bodies were not neglected and abused at the same time that their brains are overworked. The exercise of the brain calls the blood to that part, and this alone has a tendency to disturb the circulation of the blood. The equilibrium is farther impaired by insufficient dressing of the feet and legs, especially among little girls. But some little girls are better protected from the cold in winter by thoughtful mothers than little boys, who wear the fashionable short trowsers and no leggins. Well-dressed little girls now wear for winter clothing, long woolen under-drawers, coming well into the boot-top, under the thick stockings, with thick leggins for out-door wear. They also wear long-sleeved under-garments and outer-garments that afford real protection; double mittens in the coldest weather, and hoods or "nubias" that protect the forehead and sides of the head, as well as the top. One of the oldest and most important rules of health is this: "Keep the feet warm, and the head cool,"—not *cold*. If the blood is driven from the surface of the body by cold, especially at the extremities, internal organs are more or less congested by excess of blood, and in this way many different diseases are brought on. Poor food and bad air make the blood impure, and this poor, devitalized blood cannot properly nourish the various organs. Something must fail, either the physical health or mental vigor.

Sometimes the brain fails. Actual insanity may result from over-work of the brain. Sometimes the bright, precocious child becomes almost idiotic from combined over-work of the brain, excitement of feeling, and neglect of the body. More frequently the mind becomes simply weakened, and can no longer confine itself to hard study. The brain must have a long rest, and probably never fully recovers its lost power. The brain itself, though the organ of the mind, is but a part of the body, and its failure is a failure of physical health. But sometimes the mind seems even clearer and stronger than ever, as muscular power fails. A time of especial peril to girls is the age between twelve and fifteen. Nature then seeks especially to round out and develop the woman from the child, and over-work of any kind tends to thwart her plans. Many a poor girl who started well in life, physically speaking, goes into a decline at this age, because of the foolish haste of the parents about her schooling. In this "slaughter of the innocents," piano practice counts heavily.

But the child is not "crowded" with study, the parents and teachers say. It learns easily, and has plenty of time to play. Just such children I have seen break down—those who never needed to be urged to their lessons, who conscientiously performed all their piano practice without a murmur, or an expressed wish to play out-doors instead. Indeed, one of the first signs that the pupil is overworked is its reluctance to join in active physical sports. There is a limit to the amount of vital energy each one possesses at any time, and if this is habitually expended, mostly by the brain, the rest of the body can have little, and in this way all of the bodily functions are impaired. The over-tasked pupil probably seeks recreation in light reading rather than in active out-door sports, and this usually makes a bad matter worse.

That Gem Recipe.

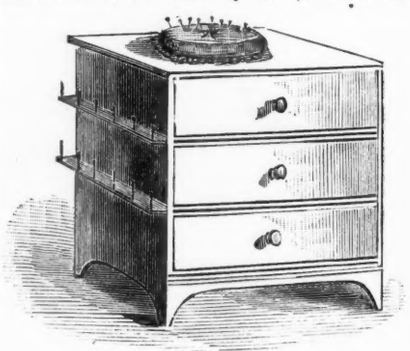
I undertook to tell how to make water gems, but the directions did not get into print as I intended. The measures were given correctly—three cups of water (or milk,) to four cups of freshly sifted, entire wheat flour, or a *little* less of unsifted, genuine graham flour. But the water should always be stirred into the flour, and it is easier not to turn it all in at once. This is the way I have made gems every day for many months past. First the fire: I fill the fire-box more full of wood, than on any other occasions, and turn the heat upon the oven, set the gem-irons upon the top of the stove, and then sift some of the entire wheat flour, unless I have some that has been sifted within a few days. Flour freshly sifted, lies so lightly together, that four cups of this is not much more than three of packed flour, just from the barrel.

I measure out four teacupfuls of the sifted flour into a pan, then three teacupfuls of cold water, pouring in two, and setting the last one beside my pan, while I stir the rest together smoothly. Then I stir in the last cupful. I rub the gem-irons over with a buttered rag (using a fork, the irons are so hot,) and immediately dip the batter into them as they set on the hottest part of the stove. My irons are large, and the amount I stirred up just fills the pans. I put them into the *hot* oven, and then look to the fire again, usually adding a stick or more of wood if I have been hindered while stirring up the batter. Until lately, I thought it best to set the irons upon the rack and bake the tops a little first. But since my stove has been well cleaned, this burns the tops, and I find it best to set the gems directly upon the oven bottom. They always rise some while baking, and should be delicately browned all over when done. Do not take them out too soon, but when they are really done (so that they will not sink in a little at the top,) do not leave them in the irons longer.

MINNESOTA HOUSE-KEEPER.

A Simple Work Box.

I saw a work box in the April number of the *American Agriculturist*. Inclosed is a plan of one I made some time ago, and find very useful. It is 10 inches high, 8 inches wide, and 6 inches deep. The drawers are 2 inches deep inside, and are made



A CHEAP AND HANDY SEWING BOX.

of ¼-inch material; the rest is of ½-inch boards. Each drawer has a brass knob. The top projects ¾-inch all around. Two strips, with wires for spools are placed on one side, the other end has a strip of leather tacked on for scissors. A pin-cushion is placed on the top. The cost of everything besides labor was 20 cents.

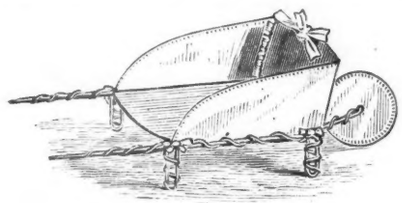
A. H. D.

A Hint to Fruit Canners.—"Reader writes us from Burlington, Kansas, as follows: "I notice that in an article on canning fruit in July last, you say, 'placed in jars previously warmed

with hot water.' Canning fruit is hot enough work without any hot water or hot jars around. Instead of this, wrap the jars with a towel saturated with *cold* water, and pour in your hot fruit. Any one who has not tried it will naturally say, 'that is the sure way to break the jars.' I would say, just try one jar and see. We have canned hundreds of jars, one and two quarts, and have never broken one in filling. I can't explain why, but simply know that it is the fact."—[We have had the same suggestion from others, and we give the above without having tried the method ourselves.—EDS.]

Wheel-barrow Needle-book.

The parts of the needle-book represented in the engraving, are made of light paste-board, covered



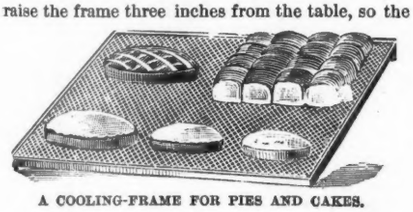
A WHEEL-BARROW NEEDLE-BOOK.

neatly with drab velvet. A small drab-silk wire, wound with the finest of blue chenille cord, is sewed around the bottom, and is bent at the proper intervals to form the handles, legs and support for the wheel. To the back of the barrow on the inside, are fastened three flannel leaves for needles, red, white, and blue in color. A bow of narrow blue ribbon covers the stitches which secure them, and finishes the places where the legs meet the barrow. A spool of cotton may be deposited in the center, and the whole makes a convenient and ornamental article for the sewing table. AUNT IDA.

Frame for Cooling Pies, Cakes, Etc.

Every house-keeper knows the consequence of letting pies, tarts, or cake stand on a solid surface while cooling. The pie-crust, which should be flaky and light, becomes soggy and moist, and the bottom of the brown crusty cake soaks and loses its delicious flavor. Some kinds of fruit pies are so juicy that they have to be put on a plate when removed from the tin, but unless that renders it necessary, they should never be put on a plate until cold.

The frame shown in the engraving is made of strips of pine, 3 feet long and 2½ feet wide, and covered with gauze wire, such as is used for sieves. At each corner, blocks are fastened for feet, to raise the frame three inches from the table, so the



A COOLING-FRAME FOR PIES AND CAKES.

air can circulate freely beneath it. The wire is fastened to the frame by small tacks. The frame is so simple that any one handy with hammer and saw would have no trouble in making it. L. F. B.

Some Hints About Pickles.

Something was said about pickles last month (p. 336), but that article does not meet all the inquiries on the subject that have come to us. While the majority agree that pickles are not really food, in the sense of being nutritive, most persons prepare and serve them upon their tables. Whether pickles are nutritive or not, people in general like them, and so long as this is the case they will be made—and it only remains for us to endeavor that they be made as wholesome, or as little harmful, as possible. At the best, a pickle is a condiment; of whatever it may be made, it is merely a convenient vehicle for conveying Acetic Acid (in the form of vinegar) together with various aromatics or spices into the system. The material of the pickle may be looked upon as a sort of sponge to allow us to partake of vinegar, either plain or spiced. The vinegar, while it allows us to preserve the articles used for the pickles from decay, at the same time renders them so indigestible that the chief effect to be expected from eating them is from the vinegar and the spices. A glance at the list of the many vegetables used as pickles shows that but very few have any marked flavor of their own, but derive their taste from the vinegar and spices. The chief exception to this general statement is the Olive, which is imported preserved in brine; this, from the quantity of oil it contains, may be somewhat nutritive, though it is consumed solely for its appetizing qualities.

The leading pickle—in this country, at least,—is the Cucumber, with a decided flavor of its own, as has the Capsicum or Pepper and the Onion, also often pickled. To these may be added the Black Walnut and the Butternut, both of which, when taken very green, make an excellent pickle, with a characteristic flavor, much like that made from the European or English Walnut. Among the articles with little character of their own but often pickled are: String-beans, Cauliflower, Cabbage, green Tomatoes, unripe Musk Melons and the rind of Watermelons, Martynias, Beets. Indeed almost any tender vegetable may be used for the purpose. Pickles may be divided into four classes. 1st, those in which the vegetables are preserved in vinegar only. 2d, in which spices of various kinds are added to the vinegar. 3d, mixed pickles in which several vegetables are used and surrounded by a thick sauce of which mustard is an important ingredient. 4th, sweet pickles, which are preserved in a thin syrup made of sugar and vinegar, usually highly spiced. For pickles of this class, Peaches, Pears and other fruits are often used, and they have become of late years very popular.

We call attention to what was said last month on the improper greening of the showy pickles offered for sale. The colorless whiskey vinegar can now be had in all large places under the name of "white-wine vinegar." This may be used, if desired, as it is quite wholesome, but without the pleasant flavor and odor of the dark-colored cider vinegar. We also refer to that article upon the salting of the different vegetables before they are put into vinegar. With most vegetables, unless they are first properly salted, the vinegar will not penetrate them in a satisfactory manner; but before they are placed in the vinegar the salt must be nearly or quite all removed by thoroughly soaking them in successive changes of pure water.

Spiced Pickles

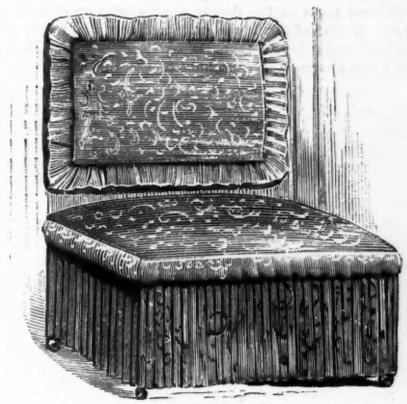
are merely pickles of any kind to which aromatics have been added; these are usually boiled in the vinegar for a short time, and the vinegar thus prepared is used instead of the common article. A skilled housekeeper needs no special recipe, as she adds such spices as she thinks will answer, knowing that if the pickles are only pungent they will be acceptable. One recipe gives for each quart of vinegar: Black Pepper, 2 oz.; Ginger Root, 1 oz.; Allspice, ½ oz. Bruise these in a mortar, and simmer gently for a few minutes. If an enamelled vessel is not at hand put the ingredients in a glass or stone jar, place this in a vessel of water and keep hot upon the stove, not boiling, for a day or two. Afterwards strain and use like ordinary vinegar. If a more pungent vinegar is desired, add a teaspoonful of Cayenne.

Sweet Pickles.

These are made from Peaches, Pears, Plums, Apples and other fruits, ripe but not too mellow; over-ripe Cucumbers, Watermelon rind and other fruits are also used. The article to be pickled is first cooked in water until a straw will pass through it. The vinegar is prepared thus: To each quart of vinegar add Brown Sugar, 3 lbs.; Stick Cinnamon, 4 oz.; Cloves, 2 oz. Bruise the spices, tie in a muslin bag and boil with the vinegar and sugar for five minutes. Pour the liquid over the fruit or other material placed in a jar. For three days in succession, heat the liquid to the boiling point, with the bag of spices, and pour over the fruit.

"Chair" Made from a Packing Box.

A very comfortable and handsome "chair" can be made from an ordinary packing box. The box should be about 1½ foot wide by 2 feet long, and not more than 14 inches deep. If deeper it will make the "chair" too high, and so take away much from its ease. A caster should be fastened firmly to each corner; after which the box is ready to cover. Cut from large-flowered chintz as many breadths, sixteen inches deep, as are necessary to go around the sides of the box three times, run them together, make a hem an inch deep around the bottom, and pleat into 1½ inch side pleats. Let the lower edge of the flounce come slightly below the bottom of the box, and lay the extra length over on to the top of the box, where it is fastened with small tacks, so that when the cushion is on the tacks will be covered. To make the cushion, cut two pieces of strong muslin, or partly-worn ticking, the size of the top of the box, and a piece three inches deep, which is to be sewed between the top and bottom of the cushion as for a mattress. One side should be left unsewed until the stuffing has been put in. For this hay or straw can be used, or worn-out comfortables or quilts. Enough of whatever is used must be put in to fill the



A BOX "CHAIR."

cushion tight. Cut from the chintz a piece the size of the top of the cushion and make a strip five inches deep, and long enough to go once and a half around the cushion. Gather this strip and sew one side to the piece of chintz. Draw over the cushions and sew the other edge of the puff to the underside. The cushion can be tacked firmly to the box along the front, by holding it up from the back and catching the tacks through the edge of the puff where it is sewed to the cushion. For the back make a pillow four inches less in length than the box, and not quite as broad as long. Feathers make a good stuffing for this, or it may be filled with whatever is used for the cushion on the box. Cover the pillow with chintz, and put a ruffle of the chintz two inches wide around it. The ruffle looks better if made double instead of hemmed. Three loops of cord are sewed to the top of the pillow, one at each corner and one in the center, far enough below the edge to keep them from showing above the ruffle, and by these the pillow is hung on nails against the wall back of the covered box. This is one of the most satisfactory of home-made "chairs." MRS. BUSYHAND.

Gems.—"A. W." writes us: "I would like to suggest to a 'Londoner,' as well as others, that there is less difficulty in making good gems, if eggs are used. One egg, well beaten, one cup sweet milk, a little salt, and sufficient Graham flour to form a rather stiff batter, will make excellent gems. The gem-pans must be heated well, greased thoroughly, then filled even full with the batter, and put into a very hot oven to bake quickly.

BOYS & GIRLS' COLUMNS

The Doctor's Talks.

Last month I described the Peach and Cherry, and then went on to the more complicated Blackberry, omitting the Apple, which of all fruits you would most like to know about. In describing fruits, an examination of

Fig. 1.—SECTION OF APPLE-BLOSSOM.

one will often help us to understand how another is made up. You will recollect that in the first flower Talk, when we began with the Buttercup, it was shown that all the different parts of the flower were placed on or started from the end of the flower-stalk, and that the name *receptacle* was given to that. It was seen last month, in the Blackberry, and especially in the Strawberry, that

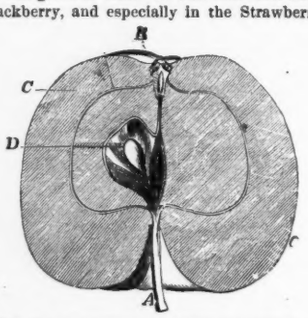


Fig. 2.—VERTICAL SECTION OF APPLE.

the receptacle increased in size after flowering, and by the time the fruit was ripe it became, especially in the Strawberry, a very important part of that which we eat as the fruit. To understand the Apple as a fruit,

We must start with the Apple-Blossom.

This, fig. 1, we used in the June Talk, but will bring it here to have it at hand to refer to. When you examine an apple-blossom, or the bud before it opens, you will notice that it is upon a small stalk and that the very end of this stalk is enlarged, or swollen, usually in the shape of a boy's top. The sepals, petals, and stamens are attached to the upper part of this, and you will not be able to find anything corresponding in appearance to the receptacle as you have seen it in the other flowers. To understand how the botanist looks upon the apple-flower, you may first examine the related Rose; fig. 3 gives the unripe *hip* or fruit of that in section. Here the receptacle, instead of being rounded that it may have room for the many pistils on its *outside*, as in the Strawberry and others, is here hollowed out, like a thimble, and the numerous pistils are attached to its *inner* surface. If the Rose had but five pistils in the center, and this hollow receptacle were to be closed around, and so attached to them as to form one mass, you would have the same structure as in the apple-blossom. Outside of all is the *calyx*, which surrounds and is united with the receptacle, at its lower part, but above is seen as five spreading sepals. When the flowering is over and the petals and stamens fall away, there remain the pistils, the receptacle and the calyx to grow and become the ripe fruit.

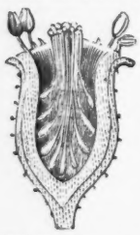


Fig. 3.—SECTION OF ROSE HIP.

Fig. 4 SECTION OF WINTER-GREEN-BERRY.

Great Changes Take Place

in the form of the Apple. The flesh grows in such a manner that the point where the stem is attached is soon at the bottom of a deep cavity. At the opposite end of the fruit we find the sepals, or parts of the calyx, remaining in a more or less dry condition, and if you remove these carefully you may be able to make out the remains of the pistils (*styles* and *stigmas*), and often there will be some withered stamens attached there. The *ovaries* of the pistils—for there are usually five—are in the fruit much changed; their walls are those tough, parchment-like, almost horn-like pieces which inclose the seeds, and are called the core. The great mass of the fruit of the Apple is the much enlarged calyx; that part of the flesh immediately surrounding the core is the juicy receptacle. In figure 2 the parts of the Apple are shown. At *A* is the stem, at the bottom of the fruit. Many regard this part of an Apple as the top, but you will find at the beginning, when the petals fall, that the end to which they are attached is uppermost, and it is only when the fruit gets heavy and bends the stem that the end to which that is attached appears to be the top. The shrivelled remains of the sepals are at *B*. The great bulk of the flesh of the Apple, *C*, is the enlarged calyx. One of the ripened ovaries with a seed is at *D*, around which is the receptacle. The Apple you see is another illustration of the fact that it is not always the ripened pistil that we esteem as the fruit. No doubt all of you who live near where they grow are fond of hunting Checkerberries, or Wintergreen-berries, as they are often called. When you come across these bright scarlet fruits, stop and examine before you eat them, and see what it is that makes the bulk of the berry. Fig. 4 shows one cut open, and you see the fleshy part is the enlarged calyx.

Fig. 5. MULBERRY.

The Blackberry and Mulberry

are much alike in general appearance. The former, as we saw last month, consists of many little fruits, but all from one flower. The Mulberry (fig. 5), on the other hand, is a collection of small fruits, each of which began with a minute flower of its own. The flowers of the Mulberry are small and crowded together on a slender stem. There are two kinds of flowers, staminate and pistillate, usually on the same tree; those which become fruit consist of a pistil and a fleshy calyx. In ripening, the calyx of the Mulberry flowers becomes the juicy and eatable part. A Pine Apple is much like an enlarged Mulberry. Here the parts of many flowers are crowded together and are united in a fleshy mass. Still if you carefully examine the "squares" or divisions on the outside, you can see the structure.

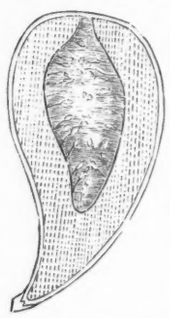


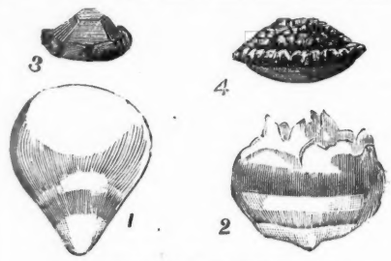
Fig. 6.—SECTION OF A FIG.

Still more puzzling is the Fig—especially in its dry state in which it is imported. Many suppose that the Fig has no flowers, but this is a mistake. It has a great many flowers, but they are very small and are out of sight. If you can get a chance to examine an unripe Fig, you can see that it is, as in fig. 6, a hollow stem, or receptacle, on the inside of which are great numbers of minute flowers. Some are staminate and others pistillate; the enlarged flowers are shown in fig. 7. When the Fig ripens, the parts of these little flowers and the receptacle upon which they grow become juicy and eatable.

7. SECTION OF FIG, WITH FLOWERS.

About Hail and Hail-Storms.

A young friend in New Jersey, who has asked many useful questions, has given me no more difficult task than to tell him "all about hail and hail-storms." In his letter he says that he knows that "hail-storms come in summer, and are very destructive," and he asks me to tell him about them. He could not have asked a more puzzling question, and in the above statement that hail-storms come in summer, and are very destructive, he has stated nearly all that is really known. Water, when it descends as rain, or as snow, is quite well understood, but its descent in the form of hail is so uncertain, that little is known about it. Hail generally falls in summer, in the form of drops of ice of varying size. Ordinarily, the "hail-stones," as they are commonly called, are not larger than a pea, but there is occasionally a storm in which the hail-stones are much larger. It is recorded that, in 1813, a storm occurred near Lyons, in France, in which the stones were of the size of lemons, and killed both men and cattle. There was a notable storm in 1847, in Georgia, during which there fell stones ten inches in circumference, and other cases are recorded in which even larger stones have fallen. Hail-stones, when large, are more or less pear-shaped, as in fig. 1, or onion-shaped, as in fig. 2. These large stones are not generally alike all through, but are transparent in parts, and often show opaque layers, as if made in part of frozen snow. In a general way, it may be said that their formation is supposed to be due to the meeting of currents of air of different temperatures, and, of course, containing different degrees of moisture. Figures 3 and 4 show some very regular and unusual hail-stones. But, as already said, there is nothing relating to atmospheric disturbances and storms, about which so little is known, as about hail and hail-storms. I do know one thing about them, though. Several years ago I visited a gentleman in Western New York, and found that all the windows



DIFFERENT FORMS OF HAIL-STONES.

upon the sides of his new house had been destroyed, and that all the glass in his green-houses had been demolished; besides which, the leaves from his fruit trees were stripped by the hail. I am utterly unable to tell my young friend any more about hail, as its coming does not appear to be subject to any known laws. It may be that at some time we shall know more about it than we now do, but at present it is impossible to predict its coming, or to take measures against it. THE DOCTOR.

A Vegetable Dish-Cloth.

Dish-cloths, as any house-wife will agree, are very important in the kitchen, but few have ever thought of planting the seed, and raising them in their garden. Yet kind old Mother Nature, who believes in law and order, has provided a dish-cloth plant, on purpose to teach her children the beauty of cleanliness, and that they may have no excuse for unwashed dishes, or rusty pans.

How many, I wonder, of our little readers, the young maidens who are learning to be good housekeepers, have seen and used this curious natural product, to wash up their dainty cups and saucers, or form into pretty ornaments, as unique presents for their friends. Perhaps some of those, whose homes are in the "Sunny South," may have done so, for the Papanjay, or Sponge Cucumber, as it is called, is a native of the East Indies, and flourishes best in warm climates, although by starting it under glass, it may be raised quite far North. Its botanical name is *Cucumis acutangulus*, and the vine itself is a most rampant grower, spreading out its squash-like leaves in all directions. The fruit it bears, is a long, narrow gourd, sometimes nearly two feet in length, within the outer shell of which, and inclosing the seeds, is found the sponge-like fibre used for dish-cloths, and which answers the purpose most admirably, better, some think, than anything prepared by art. One that was sent us last winter, might at first have

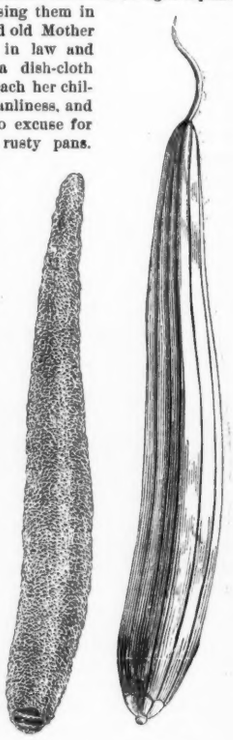


Fig. 1. Fig. 2.

been taken for a dried fish of some kind, but when wet, it resembles a piece of Turkish toweling, being of the same light-gray color, and is quite strong. A lady in Georgetown, D. C., has one, which she has used for months, and when torn, darned it with cotton, as she would any other cloth. Figure 1 shows the sponge cucumber as it grows on the vine, and as you see, has a ridged shell, like the rind of a summer squash, and unlike the smooth round gourds, sometimes used as cups or dippers. Figure 2 shows the "cloth" when the shell or rind is removed. This central portion when cut open is ready for the many purposes for which it may be used.

Children can plant and tend this vine, which will prove an ornament to the garden walls, and when the cold days come, the girls will be glad of this strong fabric, to make up into watch-cases, card-receivers, holders for postage stamps, and a variety of other things.

Our Puzzle Box.

GEOGRAPHICAL ENIGMA.

I am composed of 32 letters;
My 21, 5, 2, 6, is an island on the coast of Maine.
My 4, 25, 6, 16, 27, 19, 8, 21, is a town in Maine.
My 9, 25, 6, 1, 27, 31, 20, 21, is a town in New York.
My 29, 1, 7, 16, 10, 8, is an island in New York.
My 9, 15, 3, 21, 11, 20, is a town in Delaware.
My 30, 25, 24, 6, 25, 13, is a town in Mississippi.
My 9, 12, 32, 14, 11, 27, 7, 32, 21, is a city in Ohio.
My 29, 19, 26, 12, 10, is a Cape.
My 18, 25, 3, 28, 6, 18, 17, 16, is a town in Ohio.
My 12, 25, 23, 21, 25, 24, is a town in Kentucky.
My whole is a proverb all should remember.

T. SCHWARMAN.

INSCRIPTION.—TRANSLATE IT.

NUMERICAL ENIGMA.

I am composed of thirty letters:—
My 12, 2, 7, 28, is a limited time,
My 8, 16, 17, 3, is a hollow place,
My 21, 29, 23, is a tropical fruit,
My 21, 28, 10, 23, 16, 30, 6, is used in war,
My 1, 22, 19, is a wooden vessel,
My 15, 9, 7, 25, is essential to health,
My 23, 28, 18, 2, 8, 3, is a country.
My 11, 13, 28, 23, 9, 30, is a verb.
My 26, 16, 8, 2, is a part of the human body,
My 20, 14, 28, is a possessive pronoun,
My 5, 2, 7, 8, 24, is a well known fruit,
My 4, 18, 7, is a common vegetable.
My whole is an old adage.

CHARADE.

My first comes with pattering feet, and blesses the homes of rich and poor alike. Children shout in merriment at the bright messenger, and flowers smile back its greeting.

'Tis one of God's greatest gifts; without it old ocean would cease to be, and all that is bright and beautiful on earth would fade into nothingness.

My second is of many shapes and colors, and enters largely into the embellishment of the young lady's toilet of to-day. It may be large or small, there may be few or many, but when tastefully made, it is a "thing of beauty." It is also the name of an instrument of war.

My whole is of unequalled beauty, and in its vivid light and majestic form there has been for ages past, and will have in all time to come, a sacred significance.

ENIGMA.

Find my first in tide and wavelet,
Seek it not in surf or foam,
Find my second twice in sleeping,
Look for third in dream and home,
Fourth and fifth appear in picture,
Sixth and seventh are seen in slate,
Ninth is oft an interjection,
Eighth a personal pronoun makes,
Tenth and last appears in woman,
And is found again in man,
My whole by all should be resisted:
Guess the answer, if you can.

Two Problems on Uncle Sam's Income.—The official records say that during the past 20 financial years (1863–1882, inclusive, the years ending June 30), our General Government received from Internal Revenues, $2,931,227,331; and from Customs or Duties, $3,232,631,329, making a total income of over Six Thousand Million Dollars (**$6,163,858,660**). This is a trifle over an average of 308 Million Dollars a year. Allowing for 52 Sundays, and the fraction over for the "Leap Year," the average income of "Uncle Sam" for 20 years past has been almost exactly a *Million Dollars a Day* for every business day. Calling the business day ten hours, this is a Hundred Thousand Dollars an hour; $1,666⅔ a minute, or $27.77 each second! It would take a good many clerks to simply count the money as it comes in, especially if they reckoned the odd cents.—Two PROBLEMS for the young Arithmeticians of the readers of the *American Agriculturist:* The Legal Silver Dollar weighs 412½ grains, and 7,000 grains make a pound Avordupois.—*1st Problem:* If the entire 20 years' income, given above, were in these Silver Dollars, how many wagon loads of silver would there be of a ton or 2,000 lbs. each?—*2d Problem:* Taking the constant income, how often would a wagon be loaded with these silver Dollars, that is, in how many minutes and seconds?

Old Sights With New Eyes.

The "Boat-shell," (fig. 1,) is found in great numbers the whole length of our coast, and is prized by children as a toy. Sometimes dozens of them adhere together, and those lowest in the group cling to other animals, empty shells, or pebbles. Its form resembles that of a boat, half covered by a straight piece. Figure 2 represents the pretty purple covering of the Mussel. When living, the animals are found attached to timber and rocks, by their little byssus threads. They hang together in clusters, and many worms and other small animals hide among them. When a mussel is placed in a glass of water, it reaches out its foot, presses it against the dish, and secretes, in a groove on one side, a tough thread, one end fastened to the glass, and the other to the animal in the shell. Thread after thread is made in this way, until the mussel is fastened securely enough to endure the most severe storm. Owing to the abundance of oysters and clams, the mussel is not very generally used for food, but in Europe it is extensively eaten, and in the Baltic Sea, and on the coast of France, it is extensively cultivated. The little "Jingle Shells," are so called from the sharp metallic sound they have when shaken together. They are thin round shells, both dark and light, with gold and silver lustre. They are brilliant in Massachusetts Bay, and in childhood my schoolmates made them into necklaces. They are very thin and delicate, so that a needle will pass through them easily. We attached one row flatly to a band of black velvet, and another row as pendants to the lower edge. We made the band just large enough to fit the neck snugly, and placed a velvet bow at the back. My grandmother called them "Wampum," because the Indians decorated with them, but we thought them quite pretty, and enjoyed wearing them very much. The "Snail Lunatica," (fig. 3,) is so cruel, that it almost causes one to ignore the beautiful globular shell, with greyish-blue out-side, and pink lining. It has teeth on its tongue, with which it drills through the shells of oysters, clams, and other snails, and scrapes out the animal through the hole. Their eggs are laid in a ring, mixed with sand, and are often washed ashore. This snail is known as "Mermaids' Collars," and its beautiful form can be preserved by baking for sometime in a slow oven. The empty shells are the favorite resorts for the Hermit Crabs as their claws fit in so snugly. Many fishermen think this shell is natural to them and call them "Jack-in-a-box," and "Stone-Lobsters." AUNT IDA.

Fig. 1.—BOAT-SHELL.

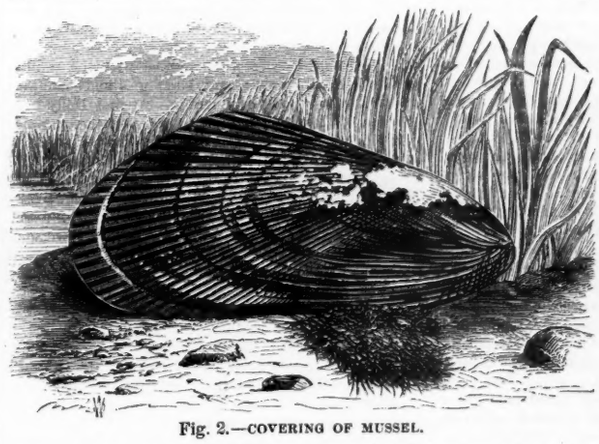


Fig. 2.—COVERING OF MUSSEL.

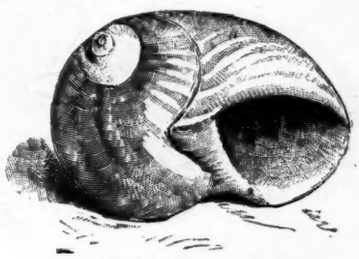


Fig. 3.—"SNAIL LUNATICA."

The Picnic on Bear Hill.

BY AGNES CARR.

Mrs. May was frying doughnuts in the back kitchen, her round motherly face one rosy glow, for the thermometer stood at ninety in the shade, and the roaring fire in the stove raised it many degrees higher. But "necessity knows no law," and Farmer May would have thought the world had turned upside down, if he had sat down to breakfast without finding a fried cake to eat with his coffee; and Mrs. May was not the woman to disappoint him. She had just dropped the last indigestible lump of dough into the boiling lard, when the outer door was burst open, and in dashed her son Nat, closely followed by his sister Rose, their eyes sparkling with delighted anticipation.

"Oh! mother! mother!" cried Nat, "what do you think! the blackberries are ripe on Bear Hill."—"And Dave Van Riper has promised to take us up there to-morrow!" exclaimed Rose.—"And have a picnic at Long Pond," put in Nat.—"We can both go, can't we, mother?" asked Rose, anxiously.—"Oh, I think so," responded Mrs. May, heartily, for she delighted to forward her children's pleasure, "if you are up bright and early, to finish your work in good season."—"And me, too! me, too!" cried four-year-old Dolly, from a distant corner, where she was hugging a long-suffering and much-enduring kitten, that rent the air with its piteous mews. "Dolly wants to go to nicpic."—"So you shall," said Rose, hastening to rescue the unfortunate cat from her young mistress' too loving embrace, "but you must not tease poor pussy so."

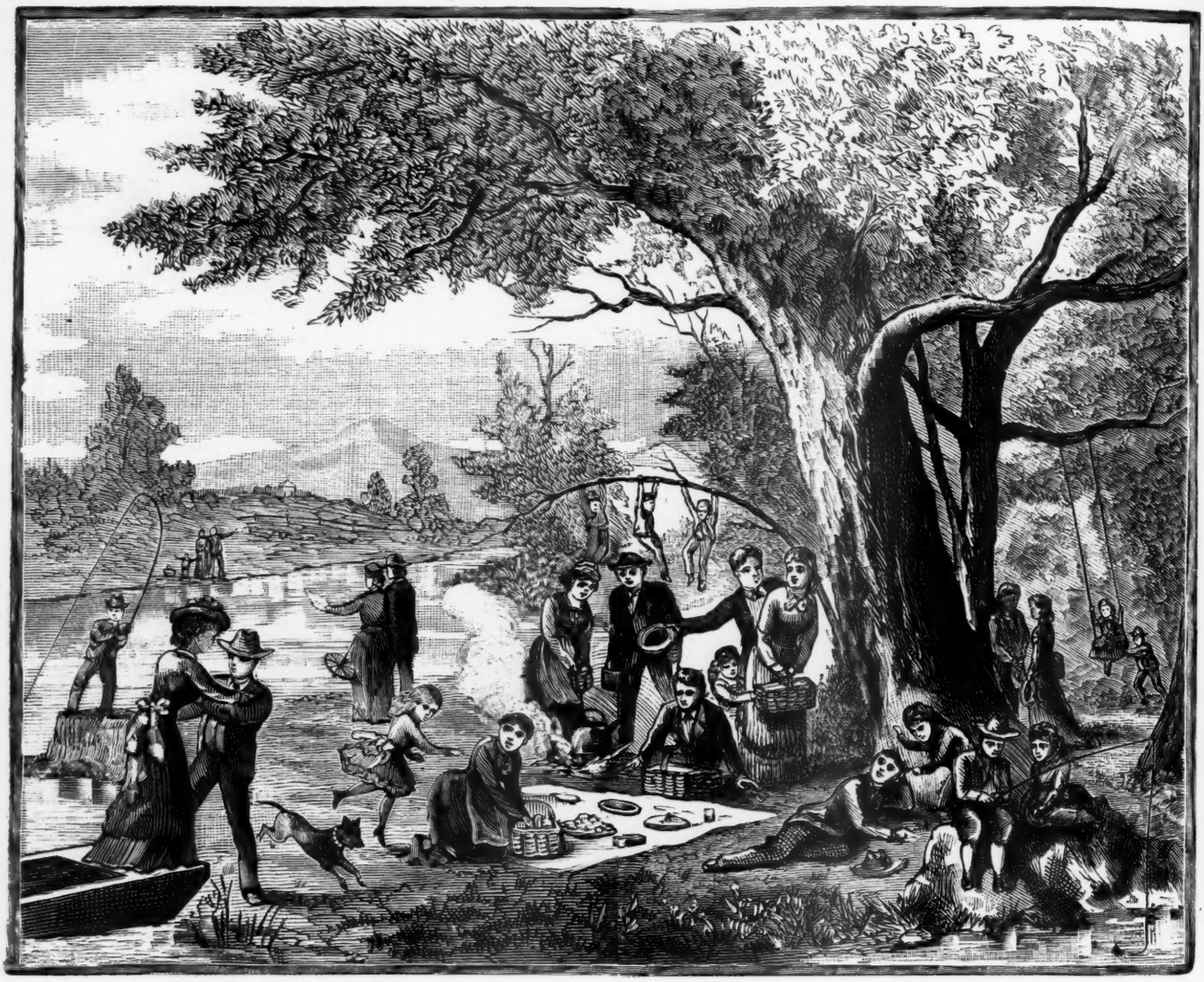
Bubble, bubble, bubble, went the lard-kettle, and Mrs. May hurried to draw out the brown twists, which all the young folks said were the thing for the morrow's lunch.

"I hope it will be a clear day," remarked Nat, as he came in with the evening milk; and all three scanned the sunset clouds anxiously, while Dolly nodded to the sun, as he hid his fiery face below the horizon, calling gaily, "Dood night, Mr. Sun; come early to-morrow."

And as though in obedience to the childish command, the old Dutch clock had scarcely struck five the next morning, when the "king of day" peeped through the farm house windows, and wakened the trio with a loving kiss. And when, some hours later, Dave Van Riper drove up to the door with his country wagon filled with a merry load of little folks and big baskets, followed by another load of young people, Nat and Rose were all ready to join the party; and Dolly, in a blue sun-bonnet, was dancing up and down on the door-step.

"I hardly like to have that baby go," said Mrs. May; "she is too young to be trusted." But the children overruled her objections, and Rose promised to keep a faithful watch on the little one. So Miss Dolly was queen of the day, and rode off in state, waving her hand to Rover, the great shepherd dog, and her constant companion, who howled dismally at seeing his little friend depart without him.

Bear Hill was a wild woodland spot, about seven miles from the village, given up to the birds, bees, and butterflies, the animals from which it derived its name having



A PICNIC PARTY ON BEAR HILL.—*Drawn and Engraved for the American Agriculturist.*

disappeared many years ago, although old hunters still occasionally told stories of having seen the tracks of bears and foxes in that vicinity. But these tales were not generally believed, and Long Pond, a clear mountain lake on the summit of the hill, was a favorite fishing place for the boys of the village. There, too, blackberries grew in the greatest profusion, seeming larger and sweeter than anywhere else. Summer now reigned here supreme, and the sparrows and catbirds opened their eyes in amazement, this fair August morning, when Dave's laughing, singing, chattering crew drove up to the lonely spot, and in less time than it takes to tell, boys were climbing up to the tops of the tallest trees, boys were swinging on the limbs, extending far over the pond. An old boat at the water's edge was taken possession of by eager young fishermen; a hastily constructed swing sent happy lads and lassies flying through the air, while the older girls built a fire of dry brush, on which to boil the kettle, and Dave was glad to stretch himself out on the soft grass for a mid-day nap.

Nat baited the hook for Nellie Brown, and helped her catch enough perch and sun-fish to make a nice panful for dinner, while Rose and her companions stripped the bushes of their luscious fruit, to add to the woodland feast. And when the signal horn awakened the echoes, and summoned the party to the rural meal, what keen appetites they all brought with them! and how like a little sylvan goddess Dolly looked, crowned with oak leaves, seated at the head of the board. The ants crept into the bread, and the grasshoppers hopped on the butter, but they only seemed to add zest to the good things, if one may judge by the simple jokes and merry laughs that resounded on all sides.

"I saw a great big, black dog," remarked Dolly, suddenly, pausing with a cup of milk in one hand and a chicken bone in the other.—"Nonsense, child," said Rose, "there are no dogs in this wild place. You must have been asleep, and dreaming of Rover."

"He was bigger than Rover," said Dolly, "and I shall give him my doughnut," at the same time pocketing one of her mother's nice cakes. The children all laughed at what they called "Dolly's fancy," but just then Dave shouted, "Dinner is over, and time to start to blackberrying. All the children may scatter in different directions, and see who will pick most by nightfall."

Nothing loth, the children did as they were bid, and pails and baskets were soon heaped with the shining fruit, which all knew meant berry pies and puddings throughout the long cold winter. At first Dolly kept close beside Rose, trying hard to help, but the brambles pricked her fingers, and at last she stopped to pluck some daisies, singing to herself a gay little song; and Rose, who was interested in filling her basket before Ethel Linn, forgot her little sister, and when she finally remembered, the child was nowhere to be seen. "She has probably gone off with Nat," thought Rose, and continued adding to her store until the horn warned them that it was time to turn their faces homeward.

On reaching the rendezvous, her first words were, "Nat, where is Dolly?"—"I have not seen her since lunch," replied her brother, "I thought she followed you."—"Then she is lost!" exclaimed Rose, in agony, and all the children cried, "Oh! oh! oh!" like a Greek chorus.—"She can't be far off," said Dave, reassuringly, "but we must start immediately in pursuit."

Old and young, up and down they went, shouting, but no response. The shadows were lengthening on the hills, the weary birds were piping a sleepy "good-night" to the flowers before tucking their tired heads under their wings, and still no sign of the missing Dolly.

"What shall I do?" cried poor Rose. "I can never go home and tell mother." And as Dolly's sweet little face, in its blue sun-bonnet, rose in memory before her, she threw herself on the ground and buried her face in the deep carpet of soft, green moss.

"Let us try once more," said Dave, who also began to look worried; and he and Nat, accompanied by some of the young men, started on a new trail, shouting at the extent of their healthy, lusty lungs. "Hark!" exclaimed Nat, at last, "I thought I heard a call."—"And I see something blue behind those trees," said one of the lads.—They listened, and in a moment more heard distinctly a sweet voice crying, "Natty, Natty, here I is."

Away they all sped towards a green hollow, from whence the tones seemed to come, but stopped short at the sight that met their astonished eyes, for there sat the wee runaway, her soft flaxen hair blowing about her face, a great bunch of yellow-eyed daisies in her lap, and by her side a large black bear, calmly finishing the berries in her little tin pail. The animal growled as they approached, and showed a row of white teeth, but Dolly patted his head confidingly, saying, "Come and see my nice picnic doggie. He eated my doughnut, and then he eated all my berries."

"Oh, Nat, call her quick!" exclaimed Dave, bravely, and as the boy held out his arms, Dolly came dancing towards him. An instant later, a loud report sounded from Dave's gun. With a wild shriek, Bruin bounded into the air, and then lay quite still, and Dolly screamed, "You naughty Dave, to kill my dear black doggie."

The rest of the party, sitting sadly on the shore of Long Pond, heard the report, but the feelings of Rose can better be imagined than described when Nat returned, bearing Dolly in triumph, with the others in his train, dragging after them the berry-loving bear which they always supposed must have come down from the neighboring mountain in search of his favorite fruit.

The stars were twinkling in the summer sky when they reached home, and Mrs. May heard from the penitent Rose of her little daughter's marvellous escape. She refrained from blaming Rose too severely, but as she kissed the baby lips, her heart was overflowing with thankfulness, that Dolly would never go blackberrying again on Bear Hill with the "dear black doggie."

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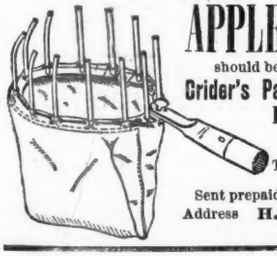
APPLES and Other FRUITS should be gathered with
Crider's Patent Adjustable Fruit Picker.
Thoroughly endorsed. THE BEST IN THE WORLD.
Sent prepaid for $1.50.
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SPLENDID AND WONDERFUL VARIETY OF

ORNAMENTAL **GRASSES**
EVERLASTING **FLOWERS**
AND **IMMORTELLES**
Tastefully arranged in BOUQUETS and DESIGNS, or for sale in Bulk.
LARGEST STOCK. FINEST COLORS.
No other house offers such advantages to the Wholesale Trade. Florists, Druggists, Fancy and Art Stores should send for our Illustrated Wholesale Price-List. Natural Grasses, Flowers and Moss, bleached and dyed to order.
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SEED WHEAT.
Improved new varieties and standard old varieties. Send for descriptive circular. *New crop Timothy*, Clover, Orchard, and other Grass Seeds at lowest market rates.
AGRICULTURAL IMPLEMENTS
in great variety. Write for descriptive circulars and prices, stating what you want. JOHNSON & STOKES, 1114 Market St., Philadelphia, Pa.

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New descriptive and instructive Catalogue of **Fruit and Ornamental Trees, etc.,** now ready. Will be sent Free to all applicants, and to those who have been purchasers within the last three years.
Large Stock of Peach and Apple Trees.
B. B. HANCE, Agent, Red Bank, N. J.

Best Market Pear.
I obtained my first grafts of this valuable Pear direct from the originator, and now offer largest stock of Trees in the country. Also other Trees, Vines, and Plants, including all best sorts, Strawberries, Raspberries, &c. Catalogue free.
J. S. COLLINS, Moorestown, N. J.

Hardy Perennial Plants
Are increasing in popularity because they are **Hardy,** their roots living through the winter—and **Perennial,** appearing year after year in the same place. They include the most beautiful kinds that bloom all through the season, from earliest spring to latest fall.
Autumn is in many cases the best season for setting out these plants.
Send for free descriptive Catalogue of the largest collection in the Country—including Hardy Climbers, Flowering Shrubs, Lilies, Phloxes, Ferns, etc. Also choice native plants.
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Bear in mind this Sieve can be adjusted to an unlimited number of different sized and shaped meshes. Made of all sizes, and for all purposes. Flour, Seeds, Grain, Beans, Peas, &c., also grades Grain of all kinds to a uniform size for the Drill and Planter. Manufactured only by the MILTON SIEVE MFG. CO., Milton, Pa. Agents wanted.

"VICTOR" One-Horse Grain Drills.

(3 and 5-Hoed), for sowing *Wheat* between *Standing Corn*, or *Wheat, Rye, Barley, Oats, Rice*, etc., in fallow ground. Can be adjusted also to drill *Corn* for *ensilage* purposes. (Send for circulars).
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EWALD OVER, Indianapolis, Ind.

SOW YOUR CLOVER AND TIMOTHY
WITH THE

MICHIGAN WHEELBARROW SEEDER.
Send for Circular describing latest improvements.
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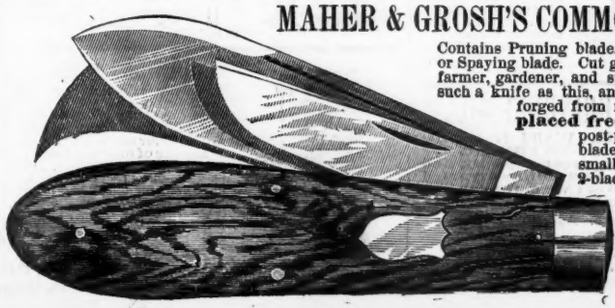
For FALL PLANTING
Fruit and Ornamental TREES, SHRUBS, ROSES, &c.
The largest and most complete general stock in the U. S. including many **Choice Novelties.** Abridged Catalogue mailed **Free** to all applicants. Address,
ELLWANGER & BARRY, Mount Hope Nurseries, Rochester, N. Y.

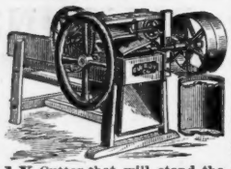
$46.93 was the October State Board valuation; **$47.50** is value given by Chicago chemist. One ton goes as far as two or three tons of coarse-ground bone on first crop. Schilling's Premium Bone has a wonderful record as a crop producer. For circular, address
LEWIS SCHILLING, Pres't Excelsior Fertilizer Co., ALLIANCE, OHIO.

SETH CHAPMAN'S SON & CO.,
DEALERS IN
Peruvian Guano
EXCLUSIVELY.
170 FRONT STREET
NEW YORK.

STOCKBRIDGE
MANURES
CAPITAL OF COMPANY:
$600.000.
PRODUCT:
1876 - - - - 1,000 Tons
1881 - - - - 21,850 "
Our Fertilizers must be giving general satisfaction, or else there could not have been so large an increase in so short a time. They not only analyze well, but they give good results in the field, which are more important. We also make it a point never to misrepresent other manufacturers to increase our own reputation. Each Fertilizer must stand on its own merits, and not upon what this or that man says of it.
PAMPHLET 1882,
Mailed Free.
BOWKER FERTILIZER CO.
BOSTON & NEW YORK.

MAHER & GROSH'S COMMON-SENSE KNIFE

Contains Pruning blade, Jackknife blade, and Budding or Spaying blade. Cut gives exact size. Probably every farmer, gardener, and stock-man has often thought of such a knife as this, and here it is. Blades carefully forged from razor steel, file-tested, and **replaced free** if soft or flawy. Price $1.00, post-paid; or without the budding blade, 75 cents; with just large and small blades, 50 cents; extra strong 2-blade, for hard service, 75 cents; "Our Best" oil-tempered Pruner, $1.00; Budding knife, 65 cents; Pruning Shears, $1.00.
Illustrated List free; also our "How to Use a Razor"
MAHER & GROSH,
Cutlers, TOLEDO, OHIO.

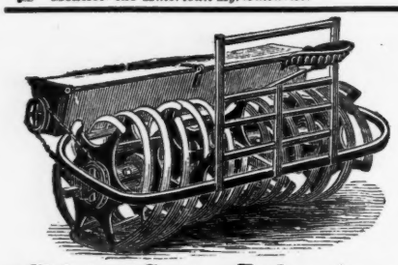
ENSILAGE.



Ross Big Giant and Little Giant Cutters. "Specials" for Ensilage, Stock Raisers, etc. *Guaranteed* superior to every other. Immense Strength, Weight, and Capacity. Will cut 2 to 4 times as fast as any other; have the Ross Patent SAFETY FLY-WHEEL, EXTENSIBLE JOINTS, CONVEX GEARS, RING ROLLERS, etc. The **ONLY** Cutter that will stand the severe work and cut fast. Send for illustrated circulars and testimonials to

E. W. ROSS & CO., Fulton, N. Y.

☞ Mention the *American Agriculturist*.



Chicago Screw Pulverizer

Puts in Crops at Half the Cost of the Plow.

Over 100,000 Acres have been put into Crops by these Machines.

PAMPHLETS FREE--CUTS & LETTERS.

Address, **MAYWOOD CO.,**

Maywood, Ill.

STRAW PRESERVING THRESHER.

Send for Illustrated and Descriptive Circular to

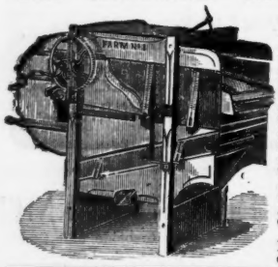
WHEELER & MELICK CO., Albany, N. Y.

THE CELEBRATED

A. P. DICKEY FANNING MILLS.

Have no equal. They obtained the highest award at the Centennial in 1876, and at Paris in 1878. These mills are made in nine sizes, for farm and Ware-house use (hand or power). Capacity from 50 to 500 bushels per hour. They clean and separate all kinds of Grain and Seed for market; also **grade** them for **seeding**. They separate Oats and foul seed, such as Cockle, Smut, &c., from Wheat, Barley or Rye; and are specially adapted for cleaning, separating and grading Timothy, Clover, Red-Top, Flax, etc., and clean and **separate** three kinds of Beans at **one operation.** We also make the "Peerless Corn Sheller." **Cast Iron Field Rollers,** &c. Address, **DICKEY & PEASE.** Manufacturers, **RACINE, Wisconsin.**

THE "CENTENNIAL" FANNING MILL.



THE BEST MILL IN THE WORLD. It separates Oats, Cockle, and all foul stuff from Wheat. Is also a perfect cleaner of Flax, Timothy, Clover, and all kinds of seeds. The great improvement over other mills is that it has two shoes. It is especially adapted for warehouse use. *Send for Descriptive Circular and Price-List.* Liberal discount to dealers. Address, S. FREEMAN & SON, Racine, Wis.

Harrison's STANDARD GRINDING MILLS!

For STEAM, WATER, WIND, HORSE, or HAND POWER. Possessing great capacity and durability. Every Mill warranted to do just what we claim for it.

Send for new Illustrated Catalogue. Address

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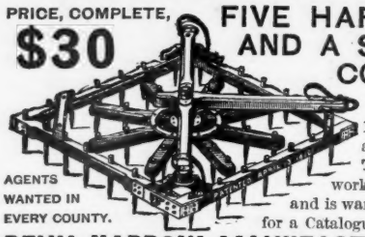
PENN HARROW BEST IN THE WORLD!

PRICE, COMPLETE, **$30**



AGENTS WANTED IN EVERY COUNTY.

FIVE HARROWS, A CORN MARKER, AND A SLED FOR EACH HARROW, COMBINED IN ONE, WITHOUT ADDING AN EXTRA PIECE.

Made of the best white oak, with steel teeth, well painted, and in every way first-class. With our improvement it is **THE MOST CONVENIENT,** and will do double the work of any other Harrow and save the Farmer half his labor, and is warranted to do all we represent or money refunded. Send for a Catalogue and see what farmers say about it. Manufactured by

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CENTENNIAL AND GRAND PARIS WORLDS FAIR PRIZES AND ALL THE U.S. STATE FAIR PREMIUMS IN 1877 & 1878.
Price, $350.
CUTS FROM 10 TO 12 TONS IN A CAR.
Price, $300.
REQUIRES LESS HELP.
Price, $175.
AND BALES TWICE AS FAST AS ANY OTHER PRESS.
THE BALE IS PATENTED AND SELLS FOR MORE MONEY.
ADDRESS FOR CIRCULAR
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THE UNION HORSE-POWER WITH LEVEL TREAD

Largest track (7 in.) wheels. No Rods and Chilled Bearings Guaranteed to produce more power with less elevation than any other. Also manufacturers of the **Premium Farm Grist Mill, CLIMAX FEED CUTTERS. Threshers, Cleaners, &c.**

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The Best in the World

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IMPROVED TRACTION ENGINE

With or without Reversing Gear. 10, 18 and 16 Horse Power. Built by

RUSSELL & CO., Massillon, O.

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Portable Engine.

STRONG, DURABLE, ECONOMICAL, SAFE.

Write for prices, addressing the Manufacturers,

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STEAM ENGINES.

One-third less Machinery than others. Best Engine for farm and dairy purposes. Address,

West Point Engine and Machine Co., West Point, Pa.

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Especially adapted for Dairies, Creameries, and Farm purposes. Can be used for years without any repairs. Over 2,200 in actual use. Not one ever exploded. Can be run by any one of ordinary intelligence. Every Engine complete, ready to use as soon as received. No Engine built so good and so low in price.

3	Horse-Power....	$240.00
4½	" "	280.00
6½	" "	355.00
8½	" "	440.00

Illustrated Catalogues Free.

JAMES LEFFEL & CO.,

110 Liberty St., New York City, or **Springfield, Ohio.**

ONEONTA CLIPPER.

This Plow contains the most remarkable improvements ever made in Swivel Plows. It is easy to handle, with **Shifting handles,** which enables the operator to walk with both feet in the furrow. The Hook or Latch is operated by the foot, so that the Plow is turned ready for use **without taking the hands from the handles.** Light to draw, firm, strong, and durable. Constructed of Patent Hard Metal, which is as strong and will scour equal to steel. We also make it of charcoal iron, at a less price.

An Illustrated Catalogue of all our Tools and Implements sent free.

THE BELCHER & TAYLOR AGRICULTURAL TOOL CO., Chicopee Falls, Mass.

LA DOW'S INDEPENDENT

SPRING TOOTH HARROW

THREE MACHINES IN ONE, and

EACH the BEST of its KIND.

Oil Tempered Spring Steel Teeth, every Tooth independent. The Teeth can be set so they will not turn over sods. Attractive in design, durable in all its parts, thorough in its work, easy in its operation and adjustments, and sold at a price within the means of ALL.

WHEELER & MELICK CO.,

ALBANY, N. Y.

Also Manufacturers of La Dow's Jointed Pulverizing Smoothing Disk Harrow.

HEEBNER'S

Level Tread Horse Power

WITH SPEED REGULATOR.

Heebner's Improved Little Giant Threshing Machine.

"Union" Feed Cutter, Circular and Drag Saw Machine, etc., Send for Catalogue. **Heebner & Sons,** Lansdale, Mont. Co., Pa.

GOOD MEN WANTED

everywhere willing to earn **$5** to **$10** per day, selling our new braided **Silver Mould White Wire Clothes-Line,** warranted to last a life-time. Pleases at sight. **Sells readily at almost every house.** Agents continually reporting grand success. **Counties reserved.** *Terms and Samples free.* Address,

GIRARD WIRE MILLS, Philadelphia, Pa.

GRIND YOUR OWN BONE

Meal and Oyster Shells

in the Frank Wilson Pat. $5 Hand Mill. Illustrated Circulars and Testimonials sent on application. Address

WILSON BROS., Easton, Pa.

We guarantee every REMINGTON CARBON PLOW well made, of good material, and, if properly handled, to give perfect satisfaction. Failing in this, after one day's trial, Plow may be held subject to Manufacturer's order.

Something New! The Coming Plow!

The New Remington Carbon Clipper

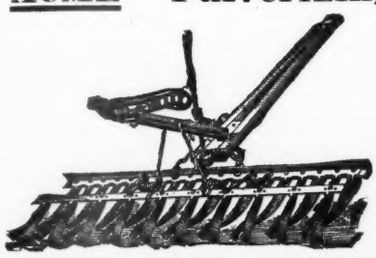
Enters upon its second year with a reputation never before achieved by any other Plow in a single season. Probably no manufacturer ever put out a Plow that from the start was so favorably received, or that was so perfect in its construction. Our first year's sales are unprecedented, both for the large number of Plows sold, and the uniform expressions of praise from every farmer who has used one. We claim for the New Remington Clipper:—Patent Carbon Metal—Improved Jointer with Steel Blade—Anti-Friction Landside—Changeable Shin—Perfection in Shape—The Lightest Weight—Easiest to Handle—Lightest Draft and Steadiest Running of any Plow in the Market. SEND FOR PRICES.

MANUFACTURED BY THE

REMINGTON AGRICULTURAL CO.,

BRANCH OFFICE, 57 Reade St., New York. ILION, N. Y.

"ACME" Pulverizing



HARROW, CLOD CRUSHER AND LEVELER.

The "ACME" subjects the soil to the action of a **Crusher** and **Leveler**, and at the same time to the **Cutting, Lifting, Turning** process of double rows of **Steel Coulters**, the peculiar shape and arrangement of which gives **immense cutting power.** The **entire absence of Spikes or Spring Teeth** avoids pulling up and scattering of rubbish. It is **especially adapted** to inverted sod, hard clay and "slough land," where other Harrows utterly fail, and also works perfectly on light soil.

Sent on trial to responsible farmers anywhere in the United States. Agents wanted. Send for circular.

NASH & BROTHER, Sole Manufacturers, HARRISBURG, Pa., and 22 COLLEGE PLACE, New York City.

BALDWIN'S IMPROVED ENSILAGE & FEED CUTTERS.

SIMPLEST AND BEST.

ONLY THREE FEED GEARS.

Thoroughly tested during the past three seasons for Cutting Ensilage and proved a grand success. And has been the leading Cutter for the past 15 years for Cutting all kinds of Dry and Green Feed. Power Cutters fitted with the only reliable Safety Balance Wheel. Send for Circular containing full description, prices, and testimonials.

C. PIERPONT & CO., Mfrs., New Haven, Conn.

THE OLD RELIABLE HALLADAY STANDARD WIND MILL

27 YEARS IN USE.

GUARANTEED

Superior to any other make.

17 Sizes-1 to 40 H. Power

Adopted by U.S. gov. at forts and garrisons and by all leading R. R. Cos. of this and other Countries.

Also, the

Celebrated I X L Feed Mill.

which can be run by any power and is cheap, effective, and durable. Will grind any kind of small grain into feed at the rate of 6 to 25 bushels per hour, according to quality and size of mill used. Send for Catalogue and Price-List. Address

U. S. WIND ENGINE & PUMP CO., BATAVIA, ILL.

Business for Young Men.

WANTED—A limited number to learn Telegraphy at once. We will give a written guarantee to furnish good paying situations as soon as competent. Address with stamp

OBERLIN TELEGRAPH CO., Oberlin, O.

Received Medal AND HIGHEST AWARD OF MERIT AT CENTENNIAL.

Send for Catalogue.

STEAM ENGINES, A. B. FARQUHAR, York, Pa.,

Cheapest and best for all purposes—simple, strong, and durable. Also Horse Powers and Gin Gear.

SAW, GRIST AND COB MILLS, GINS, PRESSES AND MACHINERY generally. Inquiries promptly answered.

SAWMILLS A Specialty.

Fig. 1.

Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world. Fig. 1 is engine in use. Fig. 2 ready for road.

Boiler 6 inches larger than others.

Fig. 2.

Send for Catalogue.

The Farquhar Separator

(Warranted)

Penna. Agricultural Works, York, Pa.

Lightest draft, most durable, simplest, most economical and perfect in use. Wastes no grain, cleans it ready for market.

Steam Engines, Horse Power and Threshers of all sizes, Saw Mills, Shingle, Cutting, &c., &c.

AND HIGHEST PRIZE AWARDED SEPARATORS,

THE SILVER MEDAL AT Paris Exposition.

Send for Illustrated Catalogue. Address A. B. Farquhar, York, Pa.

MEDAL MACHINES.

New York State Agricultural Works.

First Premiums at all Competitive Trials.

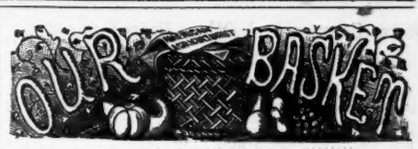
NEW SAFETY AGRICULTURAL STEAM ENGINES.

Railway, Chain and Lever Horse Powers, Threshers and Cleaners, Threshers and Shakers, Clover Hullers, Feed Cutters, Wheel Horse Rakes, Corn Cultivators, Horse Pitchforks, Shingle Machines, Straw Preserving Rye Threshers, Wheel Disc and Spring Tooth Harrows, Cider and Wine-Mills and Presses, Dog and Pony Powers, etc., etc.

WHEELER & MELICK CO., ALBANY, N. Y.

Send stamp for illustrated and descriptive circular,

ENGINES (Traction & Portable) for Farm, Saw Mill & Plantation. For prices, etc. write THE AULTMAN & TAYLOR CO. Mansfield, O.



containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing desired articles, or those referred to in the "Basket" or elsewhere, can usually be sent post-paid for 15 cts. each, or $1.50 per volume.

Clubs can at any time be *increased* by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 5 subscribers and $6, may afterwards send 5 names more and $4, making 10 subscribers for $10.00; and so for any of the other club rates.

Ants in a Lawn.—A correspondent at Osborne, Kansas, advises sinking glass tumblers, with perpendicular sides, in the soil near the ant-hills. He states that the ants fall into these traps in great numbers, and, being unable to get out, may be readily destroyed.

Devons or Jerseys.—"G. W. H.," Ohio. The Jerseys have been much better tested for butter than have the Devons, so no perfectly fair comparison of the two breeds as butter producers can be made. The milk of the Devons is rich in butter, and often very abundant, but the butter very pale. Thirty-quart cows occur occasionally, and yet we cannot find any accurate statement of the amount of butter which has been given by famous cows. Jerseys have been known to give over three pounds a day. The color of the butter varies greatly, but it is generally yellow, and of a firm and excellent quality.

The "Pussley" Question.—A subscriber, "J. M. H.," West Salem, Wis., writes us an interesting letter on Purslane or "Pussley." Having fought this weed for many years without being able to get ahead of it, it has occurred to him that a plant that so persists in growing, may have some useful qualities, indeed, may be more of a benefit than an injury. He asks if it does not derive most of its material for growth from the air, and if its benefits as a mulch, and the return of vegetable matter to the soil may not more than offset any injury it may do to the crops, especially as it only appears at midsummer, when the hoed crops are well established. These questions are of interest to nearly all cultivators, and we should be glad of any facts bearing on them.

Destroying Ants.—A correspondent in Dakota Terr., writes us that if kerosene be poured upon the nests, it will at once kill all the ants it touches, and that the rest will leave for other parts on short notice.

Trees in Dakota.—"M. W. P.," writes us from Sioux Falls, a most encouraging account of the trees that have been recently planted there. He regards the White Ash as the best suited for planting, as it is sure to live, grows rapidly, and makes a handsome tree. He says: "This prairie country is now looking finely with its groves, we are planting many fruit trees, as well as currants and other small fruits; the apple trees are full of fruit, notwithstanding some say that this is not a fruit country. Send your young men out here."

Hauling Wheat in Washington Territory.—"M. E.," Walla Walla, writes us; "I am now hauling my wheat, and find it lightens my labor very much, to fill my sacks only half full. I twist the upper end of each sack, and set the lower row mouth up. For the top course, I twist the end of each sack, and place it bottom side up. This saves labor in handling heavy sacks, and avoids the trouble of tieing or sewing them.

The Death of "Johnnie Cope" is reported; his age is not given, but his weight was 2,500 lbs. "Johnnie" was a noted Clydesdale stallion, and extremely beautiful. We saw him several years ago in Illinois, when he weighed only 2,300 lbs. To see this enormous creature out at exercise and play, was a most remarkable display of horse-flesh. With his great size, he had all the playfulness of a young colt, and he capered about with a clumsy grace, most pleasing to behold.

State, County, and Other Fairs in 1882.

STATE FAIRS.

Am. Institute	New York	Sept. 27-Dec. 2
Alabama	Montgomery	Nov. 13-18
Arkansas	Little Rock	Oct. 16-21
California	Sacramento	Sept. 11-16
Canada, Central	Guelph	Oct. 3- 4
Chicago Expos'n.	Chicago, Ill.	Sept. 6-Oct. 21
Chicago	Chicago	Sept. 18-23
Cincinnati ind. Ex	Cincinnati	Sept. 8-Oct. 7
Colorado	Denver	Sept. 1-30
Connecticut	Meri en	Sept. 19-22
Delaware	Dover	Sept. 25-30
Illinois	Peoria	Sept. 25-30
Illinois Fat Sto'k	Chicago	Nov. 16-23
Indiana	Indiana, lis	Sept. 25-30
Iowa	Des Moines	Sept. 1- 8
Kansas	Topeka	Sept. 11-16
Kentucky	Lexi gton	Aug. 29-Sep. 2
Maine	Lewiston	Sept. 26-29
Mass. Hort'l	Boston	Sept. 19-22
Michigan	Jackson	Sept. 18-22
Minnesota	Rochester	Aug. 29-Sept. 2
Minn. Agl. & Mc'h	Minneapolis	Sept. 4- 9
Montana	Helena	Sept. 25-30
Nebraska	Omaha	Sept. 11-16
New England	Worcester, Mass.	Sept. 5- 8
New Jersey	Waverly	Sept. 18-22
New York	Utica	Sept. 25-29
North Carolina	Raleigh	Oct. 16-21
Ohio	Columbus	Aug. 28-Sept. 1
Oregon	Salem	Sept. 18-23
Pennsylvania	Pittsburg	Sept. 7-21
Rhode Island	Cranston	Sept. 12-15
St. Louis	St. Louis, Mo.	Oct. 2- 7
South Carolina	Columbia	Nov. 14-17
Texas	Austin	Oct. 17-21
Tri-State, Ohio	Toledo	Sept. 11-16
Vermont	Burlington	Sept. 12-15
Virginia	Richmond	Oct. 25-27
Western Michigan	Grand Rapids	Sept. 25-30
West Virginia	Wheeling	Sept. 11-16
W. Va. Central	Clarksburg	Sept. 19-21
Wisconsin	Fond du Lac	Sept. 11-16

Other Important Fairs.

Industrial	Toronto, Ont.	Sept. 4- 6
Ontario Central	Hamilton, Ont.	Sept. 26
Permanent	Montreal, P. Q.	Sept. 14
Provincial	Kingston, Ont.	Sept. 19
Western	London, Ont.	Sept. 25-27

County Fairs.

MAINE.

Androscoggin	Auburn	Sept. 26-29
Aroostook	Houlton	Oct. 6- 7
Cumberland	Presumpscot Park, Spt	19-22
Franklin	Farmington	Oct. 10-12
Knox	Rockport	Oct. 3- 5
Knox	North Washington	Oct. 10-13
Lincoln	Damariscotta	Oct. 3- 5
Lincoln	Wiscasset	Oct. 3- 5
Oxford	Paris	Oct. 3- 5
Oxford West	Fryeburg	Oct. 10-12
Penobscot, West	Exeter	Sept. 26-27
Piscataquis Cent	Foxcroft	Oct. 3- 5
Sagadahoc	Topsham	Oct. 10-12
Somerset	No fair this year.	
Somerset West	North Anson	Oct. 3- 4
Waldo & Penob't	Monroe	Oct. 4- 5
Waldo	Belfast	Oct. 3- 5

MASSACHUSETTS.

Amesbury & Salis'y	Amesbury	Sept. 21-22
Barnstable	Barnstable	Sept. 26-27
Berkshire	Pittsfield	Oct. 3- 5
Bristol	Taunton	Sept. 26-28
Deerfield Valley	Charlemont	Sept. 21-22
Essex	Haverhill	Sept. 26-27
Franklin	Greenfield	Sept. 28-29
Hampden	Holyoke	Sept. 26-28
Hampden, East	Palmer	Sept. 19-20
Hampshire, Fr'k-lin & Hampden	Northampton	Oct. 4- 6
Hampshire	Amherst	Sept. 21-22
Highland	Middlefield	Sept. 14-15
Hingham	Hingham	Sept. 12-13
Hoosac Valley	North Adams	Sept. 19-20
Housatonic	G't Barrington	Sept. 27-29
Marshfield	Marshfield	Sept. 13-15
Martha's Viney'd.	W. Tisbury	Oct. 3- 4
Middlesex	Concord	Sept. 26-28
Middlesex, North	Lowell	Sept. 26-27
Middlesex, South.	Framingham	Sept. 19-20
Nantucket	Nantucket	Sept. 6- 7
Plymouth	Bridgewater	Sept. 20-22
Union	Blandford	Sept. 20-22
Worcester	Worcester	Sept. 5- 8
Worcester, South	Sturbridge	Sept. 14-15
Worcester, S. E.	Milford	Sept. 26-28
Worcester, North	Fitchburg	Sept. 26-27
Worcester, N. W.	Athol	Oct. 3- 4
Worcester, West.	Barre	Sept. 28-29

CONNECTICUT.

Chester	Chester	Sept. 28
Clinton	Clinton	Oct. 4
Danbury	Danbury	Oct. 2- 7
Fairfield	Norwalk	Sept. 12-15
Guilford	Guilford	Sept. 2- 7
Milford & Orange	Milford	Sept. 27-28
New London	Norwich	Sept. 26-28
New Milford	New Milford	Sept. 27-30
Pequabuck	Bristol	Sept. 27-28
Ridgefield	Ridgefield	Sept. 19-22
Simsbury	Simsbury	Oct. 3- 4
Tolland, East	Stafford Springs	Oct. 5- 6
Union	Falls Village	Sept. 12-13
Union (Munroe)	Huntington	Sept. 26-28
Watertown	Watertown	Sept. 26-28
Westbrook	Westbrook	Oct. 10
Windham	Brooklyn	Sept. 19-21
Woodbridge and Bethany	Woodbridge	Sept. 20-21
Woodbury	Woodbury	Sept. 13-14
Woodstock	Woodstock	Sept. 11-13

NEW HAMPSHIRE.

Carroll	No fair this year.	
Cheshire	Keene	Sept. 27-28
Hillsborough	No fair this year.	

VERMONT.

Rupert	West Rupert	Sept. 26-28
Windham	Newfane	Sept. 20-21
Windsor	Woodstock	Sept. 26-28

RHODE ISLAND.

Kent	No fair this year.	
Washington	West Kingston	Sept. 19-21
Woonsocket	Woonsocket	Sept. 19-21

NEW YORK.

Albany	No fair this year.	
Alleghany	Angelica	Oct. 3- 5
Broome	Whitney's Point	Sept. 5- 8
Carthage Union	Carthage	Sept. 5- 8
Cattaraugus	Little Valley	Sept. 11-14
Chautauqua	Jamestown	Sept. 5- 8
Chemung	Elmira	Sept. 19-21
Columbia	Chatham	Sept. 19-21
Columbia	Hudson	Sept. 26-28
Cortland	Cortland	Sept. 5- 7
Delaware	Delhi	Sept. 12-14
Duchess	Washington Hol.	Sept. 19-22
Erie	Hamburg	Sept. 26-29
Franklin	Malone	Sept. 26-28
Fulton	Johnstown	Sept. 5- 7
Genesee	Batavia	Sept. 14-16
Herkimer	Herkimer	Sept. 12-14
Jefferson	Watertown	Sept. 19-21
Lewis	Lowville	Sept. 12-15
Livingston	Genesco	Oct. 3- 4
Montgomery	Fonda	Sept. 12-14
Oneida	Rome	Sept. 20-22
Onondaga	Syracuse	Oct. 3- 6
Ontario	Canandaigua	Oct. 3- 5
Orange	Middletown	Sept. 19-22
Orleans	Albion	Sept. 22-23
Oswego	Mexico	Sept. 12-14
Otsego	Cooperstown	Sept. 19-21
Putnam	Carmel	Sept. 19-21
Queens	Mineola	Sept. 26-28
Rensselaer	Troy	Sept. 5- 8
Rockland	Spring Valley	Sept. 26-28
St. Lawrence	Canton	Sept. 12-14
Saratoga	Ballston Spa	Sept. 12-15
Schenectady	Schenectady	Sept. 26-28
Schoharie	Schoharie	Sept. 19-21
Schuyler	Watkins	Oct. 4- 6
Seneca	Waterloo	Oct. 3- 5
So. Ulster Hort'l	Highland	Sept. 19-20
Steuben	Bath	Sept. 26-29
Suffolk	Riverhead	Oct. 3- 5
Sullivan	Monticello	Oct. 3- 5
Tioga	Owego	Sept. 12-14
Tompkins	Ithaca	Sept. 26-28
Ulster	No fair this year.	
Washington	Sandy Hill	Sept. 5- 8
Wayne	Lyons	Sept. 21-23
Westchester	No fair this year.	
Western N. Y.	Rochester	Sept. 19-22
Wyoming	Warsaw	Sept. 26-28

NEW JERSEY.

Bergen	Hohokus	Sept. 13
Burlington	Mt. Holly	Oct. 10-13
Cumberland	Bridgeton	Sept. 20-21
Gloucester	No fair this year.	
Hudson	No fair this year.	
Hunterdon	Flemington	Sept. 26-28
Mercer	No fair this year	
Morris	No fair this year.	
Somerset	Somerville	Oct. 3- 6
Sussex	Newton	Sept. 26-29
Union & Middle'x	Plainfield	Sept. 25-29
Warren	No fair this year.	

PENNSYLVANIA.

Adams	No fair this year.	
Armstrong	Kittanning	Sept. 12-15
Armstrong	Parker's Landing	Sept. 26-29
Beaver	Beaver	Oct. 26-29
Bedford	Bedford	Sept. 26-29
Berks	Reading	Sept. 26-29
Blair	Hallidaysburg	Sept. 25-28
Bradford	Towanda	Sept. 27-29
Bradford	Troy	Sept. 19-22
Bucks	Doylestown	Oct. 3- 6
Butler	Harmony	Sept. 19-21
Butler	Zetenople	Sept. 27-29
Cambria	No fair this year.	
Cameron	No fair this year.	
Carbon	Lehighton	Oct. 3- 6
Centre	No fair this year.	
Chartiers Valley	Canonsburg	Sept. 26-28
Chester	West Chester	Sept. 21-23
Chester	Oxford	Sept. 27-29
Columbia	Bloomsburg	Oct. 11-14
Connoquenessing Valley	Zelienople	Sept. 27-29
Crawford	Titusville	Sept. 19-21
Cumberland	Carlisle	Sept. 26-29
Dauphin	Harrisburg	Sept. 13-16
Dauphin	Gratz	Sept. 19-22
Delaware	Elwyn Station	Oct. 4- 7
Doylestown	Doylestown	Oct. 3- 6
Easton Far. & Mech. Institute		Sept. 12-15
Erie	Erie	Sept. 26-27
Fayette	Uniontown	Oct. 3- 5
Franklin	No fair this year.	
French Cr'k Valley	Cochranton	Sept. 13-15
Gratz Driving P'k	Gratz	Sept. 19-22
Greene	Jacksonville	Sept. 20-21
Harford	Harford	Sept. 27-28
Huntington	No fair this year.	
Indiana	Indiana	Oct. 3- 6
Jefferson	Brookville	Sept. 19-22
Jefferson	Punxsutawny	Sept. 26-29
Keystone & Buckeye	Sharon	Sept. 27-30
Lackawanna	Scranton	Sept. 26-29
Lancaster	No fair this year.	
Lawrence	Newcastle	Sept. 14-16
Lebanon	Lebanon	Oct. 4- 6
Lehigh	Allentown	Sept. 26-29
Luzerne	Wyoming	Sept. 12-15
Lycoming	Williamsport	Sept. 19-22
McKean	Port Allegheny	Sept. 19-22
Mercer	Stoneboro	Sept. 25-27
Mercer	Ringer	Sept. 6- 8
Mercer	Greenville	Sept. 20-22
Mercer	Sharon	Sept. 27-30
Mifflin	No fair this year.	
Monroe	No fair this year.	
Montgomery	Ambler Park	Sept. 26-29
Montour	Danville	Oct. 4- 7
Northern Montour	Washingtonville	Oct. 17-20
Nicholson	Nicholson	Sept. 7- 8
Northampton	Nazareth	Oct. 3- 6
Northampton	Easton	Sept. 12-15
Northumberland	Sunbury	Sept. 26-29
Oil Creek Valley	Titusville	Sept. 19-21
Oxford	Oxford	Sept. 27-29
Perry	No fair this year.	
Petroleum	Parker's Landing	Sep. 26-29
Potter	Coudersport	Sept. 26-28
Punxsutawny	Punxsutawny	Sept. 26-29
Ringtown	Ringtown	Sept. 19-22
Schuylkill	Orwigsburg	Oct. 3- 6
Schuylkill	Ringtown	Sept. 19-22
Shenango Valley	Greenville	Sept. 20-22
Sullivan	Dushore	Oct. 3- 5
Susquehanna	Montrose	Sept. 13-14
Susquehanna	Harford	Sept. 27-28
Tioga	Wellsboro	Sept. 20-23
Troy	Troy	Sept. 19-22
Union	Lewisburg	Oct. 4- 7
Venango	Franklin	Sept. 20-22
Warren	Sugar Grove	Sept. 12-14
Washington	Washington	Oct. 3- 6
Washington	Cannonsburg	Sept. 26-28
Washington	Burgettstown	Oct. 3- 6
Wayne	Honesdale	Sept. 26-28
Wellsboro	Wellsboro	Sept. 20-23
Westchester	Chester	Sept. 21-23
Western Penns'a.	Mercer	Sept. 6- 8
Wyoming	Tunkhannock	Sept. 20-22
Wyoming	Nicholson	Sept. 7- 8
York	York	Oct. 3- 6

ILLINOIS.

Adams	Camp Point	Sept. 4- 8
Boone	Belvidere	Sept. 4- 9
Brown	Mt. Sterling	Aug. 29-Sep. 1
Bureau	Princeton	Sept. 12-15
Calhoun	No fair this year.	
Carroll	Mt. Carroll	Sept. 12 15
Cass	Virginia	Sept. 12-15
Champaign	Champaign	Aug. 29-Sept. 1
Clay	No fair this year.	
Coles	Charleston	Sept. 20-23
Crawford	Robinson	Oct. 3- 6
Cumberland	Toledo	Sept. 6- 9
DeKalb	Sandwich	Sept. 11-15
DeKalb	Sycamore	Sept. 19-22
DeWitt	Clinton	Aug. 22-25
Douglas	Tuscola	Sept. 13-15
Edgar	Paris	Sept. 5- 8
Edwards	Albion	Oct. 3- 6
Effingham	Effingham	Sept. 26-29
Fayette	Vandalia	Sept. 21-23
Ford	Paxton	Aug. 29-Sept. 1
Franklin	Benton	Oct. 17-20
Fulton	Canton	Sept. 19-22
Fulton	Avon	Sept. 12-15
Gallatin	Shawneetown	Aug. 29-Sep. 1
Greene	Carrollton	Oct. 17-20
Hamilton	McLeansboro	Oct. 10-13
Hancock	Warsaw	Sept. 6- 9
Hardin	Elizabethtown	Sept. 27-30
Henderson	Biggsville	Sept. 12
Henry	Cambridge	Sept. 4- 8
Iroquois	Watseka	Aug. 14-18
Jackson	Carbondale	Oct. 9-13
Jackson	Murphysboro	Sept. 27-30
Jasper	Newton	Sept. 19-22
Jersey	Jerseyville	Oct. 10-13
Jo Daviess	Galena	Sept. 5- 8
Jo Daviess	Warren	Sept. 13-16
Kankakee	Kankakee	Sept. 12
Kendall	Bristol	Sept. 5- 8
Knox	Knoxville	Sept. 4- 9
Lake	Waukegan	Sept. 25-30
LaSalle	No fair this year.	
Lawrence	No fair this year.	
Lee	No fair this year.	
Livingston	Pontiac	Aug. 29-Sept. 1
Livingston	Fairbury	Sept. 4- 7
Logan	Lincoln	Aug. 28-Sep. 2
Logan	Atlanta	Sept. 5- 8
Macon	Decatur	Sept. 5- 8
Macoupin	Carlinville	Sept. 5- 8
Marion	Centralia	Sept. 27-30
Marion	Salem	Sept. 26-29
Marshall	Lacon	Sept. 18-22
Marshall	Wenona	Sept. 18-22
Mason	Havana	Sept. 5- 9
Massac	Metropolis	Oct. 11-14
McDonough	Macomb	Aug. 28-Sept. 2
McHenry	Woodstock	Sept. 12-15
McHenry	Marengo	Sept. 19-22
Madison	No fair this year.	
Menard	No fair this year.	
Mercer	Aledo	Sept. 19-22
Monroe	No fair this year.	
Montgomery	Hillsboro	Sept. 26-29
Morgan	Jacksonville	Aug. 22-25
Moultrie	Sullivan	Sept. 26-29
Perry	Pinckneyville	Oct. 3 6
Piatt	Monticello	Aug. 14-18
Pike	Pittsfield	Sept. 26-29
Pope	Golconda	Oct. 4- 7
Putnam	No fair this year.	
Randolph	Chester	Oct. 17-20
Richland	Olney	Sept. 13-16
Rock Island	Port Byron	Sept. 6- 8
St. Clair	Belleville	Oct. 10-13
Saline	Eldorado	Sept. 19-23
Sangamon	Springfield	Sept. 18-23
Schuyler	Rushville	Sept. 29-21
Scott	No fair this year.	
Shelby	Shelbyville	Sept. 26-30
Stark	Wyoming	Sept. 11-15
Stark	Toulon	Sept. 19-22
Tazewell	Delavan	Sept. 18-22
Union	Jonesboro	Sept. 12-17
Union	Anna	Aug. 29-Sept. 1
Vermilion	Danville	Sept. 12-15
Vermilion	Hoopeston	Aug. 28-Sept. 1
Warren	Monmouth	Sept. 5- 8
Washington	No fair this year.	
Wayne	No fair this year.	
White	Carmi	Sept. 5- 9
Whiteside	Sterling	Sept. 12-15
Whiteside	Morrison	Sept. 5- 8
Whiteside	Albany	Aug. 23-25
Williamson	Marion	Sept. 26-29
Winnebago	Rockford	Sept. 11-15
Woodford	El Paso	Sept. 11-16

INDIANA.

Adams	No fair this year.	
Allen (N. Ind)	Fort Wayne	Sept. 25-29
Bartholomew	Columbus	Aug. 28-Sep. 2
Benton	No fair this year.	
Blackford	Hartford City	Sept. 12-15
Brown	No fair this year.	
Carroll	No fair this year.	
Cass	Logansport	Sept. 19-23
Clark	Charlestown	Sept. 12-15
Clay	Brazil	Sept. 4- 9
Clinton	Frankfort	Aug. 28-Sep. 1
Daviess	No fair this year.	
Dearborn	Lawrenceburgh	Aug. 22-26
Decatur	Greensburg	Aug. 22-26
Delaware	Muncie	Aug. 15-18
Elkhart	Goshen	Oct. 10-13
Fayette	Connersville	Sept. 5- 8
Floyd	No fair this year.	
Fountain	Covington	Sept. 19-22
Franklin	No fair this year.	
Fulton	Rochester	Sept. 27-30
Gibson	Princeton	Sept. 18-23
Grant	Marion	Sept. 12
Greene	Linton	Oct. 2- 7
Hamilton	Noblesville	Aug. 28-Sept. 1
Harrison	Corydon	Sept. 4- 9
Henry	Newcastle	Sept. 19-22
Howard	Kokomo	Sept. 5- 8
Huntington	Huntington	Sept. 19-22
Jackson	Brownstown	Aug. 22-25
Jasper	Rensselaer	Sept. 12-15
Johnson	Franklin	Sept. 19-23
Jay	Portland	Sept. 26
Jennings	North Vernon	Aug. 8-11
Johnson	No fair this year.	
Knox	Vincennes	Oct. 9-14
Kosciusko	Warsaw	Sept. 19-22
La Grange	La Grange	Sept. 27-29
Lake	Crown Point	Sept. 5- 6
Lawrence	Bedford	Sept. 13-16
La Porte	La Porte	Sept. 19-22
Madison	Anderson	Sept. 5- 8
Marshall	No fair this year.	
Martin	Loogootee	—
Miami	Peru	Sept. 12-17
Monroe	No fair this year.	
Montgomery	Crawfordsville	Sept. 11-16
Newton	Morocco	Sept. 5- 8
Noble	Ligonier	Oct. 11-14
Parke	Rockville	Aug. 21-26
Perry	Rome	Oct. 2- 7
Porter	Valparaiso	Sept. 27-29
Posey	New Harmony	Sept. 11-14
Pulaski	Winamac	Sept 20-23
Randolph	Winchester	Sept. 12-15
Ripley	Osgood	Aug. 15-18
Rush	Rushville	Sept. 12-15
Scott	No fair this year.	
Shelby	Shelbyville	Sept. 5- 9
Steuben	Angola	Oct. 10-13
St. Joseph	South Bend	Oct. 2- 7
Tippecanoe	Lafayette	Sept. 4- 9
Tipton	Tipton	Sept. 19-22
Vanderburgh	No fair this year.	
Vermillion	No fair this year.	
Vigo	Terre Haute	Sept. 11 15
Wabash	Wabash	Sept. 12-16
Warren	West Lebanon	Sept. 11-15
Washington	Salem	Aug. 29
Wayne	No fair this year.	
Wells	Bluffton	Sept. 19-22
White	No fair this year.	
Whitley	Columbia City	Sept. 19-22

IOWA.

Agency City Dis't	Agency City	Oct. 3- 6
Allamakee	Waukon	Sept. 19-22
Appanoose	Centerville	Sept. 19-22
Boone Dist	Boone	Sept. 13-16
Bremer	Waverly	Sept. 19-22
Buchanan	Independence	Sept. 26-29
Buena Vista	No fair this year.	
Cass	Atlantic	Aug. 29-Sept. 1
Cedar	Tipton	Sept. 5- 7
Chickasaw	New Hampton	Sept. 2, 29
Clarke	Osceola	Aug. 29-Sept. 1
Clayton	Farmersburg	Sept. 12-14
Clinton	DeWitt	Sept. 19-22
Crawford	Denison	Sept. 13-15
Creston Ag'l S'y	Creston	Sept. 25-30
Dallas	Adel	Sept. 26-29
Davis	Bloomfield	Sept. 13-15
Decatur	Leon	Aug. 29-Sept. 1
Delaware	Manchester	Sept. 12-15
Des Moines	Burlington	Sept. 18-22
Dist. at Mechv'lle	Mechanicsville	Sept. 12-16
Dist. at Mt. Joy	Davenport	Sept. 12-15
Dubuque	No fair this year.	
Dunlap Dist	Dunlap	Sept. 20-22
Emmet	No fair this year.	
Fayette	West Union	Sept. 12-15
Floyd	Charles City	Aug. 29-Sept. 1
Grand River Dis.	Lineville	Sept. 19-22
Grundy	Grundy Center	Sept. 20-22
Guthrie	Guthrie Centre	Sept. 26-28
Hamilton	Webster City	Oct. 11-13
Hancock	Britt	Sept. 21-23
Hardin	Eldora	Sept. 12-15
Harrison	Mo. Valley	—
Henry	Mt. Pleasant	Sept. 19-22
Howard	Cresco	Sept. 6- 8
Humboldt	Humboldt	Sept. 20-22
Iowa	Marengo	Sept. 20-22
Inter-State	Hamburg	Sept. 18-23
Jackson	Maquoketa	Sept. 5- 8
Jasper	Newton	Aug. 19-22
Jefferson	Fairfield	Sept. 19-21
Jones	Monticello	Aug. 15-17
Keokuk	Sigourney	Aug. 22-25
Kossuth	Altona	Sept. 13-15
Lee	Donnelson	Sept. 12-15
Linn	Cedar Rapids	Aug. 28-31
Louisa	Wapello	Sept. 12-15
Lucas	Charlton	Sept. 20-22
Madison	Winterset	Aug. 28-31
Mahaska	Oskaloosa	Aug. 28-Sep. 1
Malcolm Dist	Malcolm	Aug. 24-26
Maple River V. D.	Battle Creek	Sept. 19-20
Marion	Knoxville	Aug. 22-25
Marshall	Marshall'wn	Aug. 29-Sep. 1
Mitchell	Osage	Sept. 19-22
Monona	Onawa	Sept. 27-29
Monroe	Albia	Sept. 12-15
Montgomery	Red Oak	Sept. 18-23
Moulton Dist	Moulton	Sept. 26-29
Muscatine	Muscatine	Sept. 12-14
Osceola	Sibley	Sept. 15-16
Pocahontas	No fair this year.	
Polk	DesMoines	Sept. 1
Pottawattamie	Council Bluffs	Sept. 18-22
Poweshiek Cen'l.	Malcom	Sept. 26-28
Poweshiek, New.	Brooklyn	Sept. 20-22
Ringgold	Mt. Ayr	Sept. 26-29
Sac	—	—
Scott	Davenport	Aug. 28-Sept. 1
Shelby	Harlan	Sept. 21-22
Sioux	No fair this year.	
Strawberry Pt. Dis.	Strawberry	Sept. 19-22
Tama	Tama City	Sept. 12-14
Taylor	Bedford	Sept. 12-16
Traer Dis	Traer	Aug. 29-31
Union	Knoxville	Aug. 22-25
Union Dist	Afton	Sept. 20-22
Union Dist	La Porte City	Sept. 11-13
Union Dist	Wt. Liberty	Aug. 30-Sep. 1
Van Buren	Keosauqua	Sept. 12-15
Wayne	Corydon	Sept. 26-29
Webster	No fair this year.	
Winnebago	No fair this year.	
Winneshiek	Decorah	Sept. 12-15
Woodbury	Souix City	Sept. 11-14

MICHIGAN.

Armada	Armada	Oct. 4- 6
Bay	Bay City	Sept. 20-22
Branch	Coldwater	Sept. 26-29
Cass	Cassopolis	Sept. 20-22
Clinton	St. Johns	Sept. 26-29
Calhoun	Marshall	Sept. 26-29
Eaton	Charlotte	Sept. 26-29
Grand Traverse	Traverse City	Sept. 12-15
Gratiot	Ithaca	Oct. 4- 6
Genesee	Flint	Oct. 3- 6
Hillsdale	Hillsdale	Oct. 3 6
Huron	Bad Axe	Oct. 4- 5
Ingham	Mason	Sept. 26-28
Ionia	Ionia	Oct. 3- 6
Jackson	No fair this year.	
Josco	Tawas City	—
Kalamazoo	No fair this year.	
Lenawee	Adrian	Sept. 26-29
Livingston	Howell	Sept. 26-28

Macomb	Richmond	Sept. 13-15
Mason	Ludington	Sept. 12-15
Montcalm	Stanton	Sept. 26-29
Manistee	Bear Lake	Oct. 4- 6
Monroe	Monroe	Sept. 19-22
Oakland	Pontiac	Oct. 3- 6
Oceana	Hart	Sept. 12-15
Ogemaw	No fair this year.	
Osceola	Evart	Oct. 4- 6
Otsego	Gaylord	Oct. 2- 7
Roscommon	No fair this year.	
St. Joseph	Centerville	Oct. 3- 6
Tuscola	Watrousville	Oct. 4- 6
VanBuren	Paw Paw	Oct. 10-13
Stockbridge	Stockbridge	Oct. 10-12
Eaton Rapids	Eaton Rapids	Oct. 11-13
Union	Ovid	Oct. 10-13
St. Jo. Valley	Litchfield	Oct. 10-13
Plainwell	Plainwell	Oct. 3- 6

OHIO.

Allen	Lima	Sept. 26-29
Ashland	No fair this year.	
Ashtabula	Jefferson	Sept. 26-29
Athens	Athens	Oct. 4- 6
Auglaize	Wapakoneta	Oct. 3- 6
Belmont	St. Clairsville	Sept. 6- 8
Brown	Georgetown	Oct. 3- 6
Butler	Hamilton	Oct. 2- 6
Carroll	Carrollton	Oct. 3- 5
Champaign	Urbana	Sept. 5- 8
Clarke	Springfield	Aug. 22-25
Clermont	Owensville	Sept. 5- 8
Clinton	Wilmington	Aug. 15-18
Columbiana	New-Lisbon	Sept. 26-28
Coshocton	Coshocton	Oct. 10-13
Crawford	Bucyrus	Sept. 26-29
Cuyahoga	Chagrin Falls	Sept. 26-28
Darke	Greenville	Sept. 18-22
Defiance	Defiance	Sept. 25-29
Delaware	Delaware	Sept. 26-29
Erie	Sandusky	Sept. 19-22
Fairfield	Lancaster	Oct. 11-14
Fulton	Wauseon	Sept. 19-22
Gallia	Gallipolis	Sept. 13-16
Geauga	Burton	Sept. 11-14
Greene	Xenia	Sept. 7 9
Guernsey	Washington	Sept. 27 29
Hamilton	Carthage	Sept. 26-29
Hancock	Findlay	Sept. 27-30
Hardin	Kenton	Oct. 4- 7
Harrison	Cadiz	Oct. 4- 6
Henry	No fair this year.	
Hocking	No fair this year.	
Huron	Norwalk	Sept. 26-29
Jackson	No fair this year.	
Jefferson	Smithfield	Sept. 27-29
Knox	No fair this year.	
Lake	Painesville	Sept. 26-29
Lawrence	Ironton	Sept 19-22
Licking	Newark	Oct. 3- 6
Logan	Bellefontaine	Sept. 26-29
Lorain	Elyria	Sept. 26-28
Marion	Marion	Oct. 3- 6
Medina	Medina Village	Sept. 13-15
Meigs	Rock Springs	——
Mercer	Celina	Sept. 20-23
Miami	Troy	Oct. 3- 6
Monroe	Woodsfield	Sept. 27-29
Morgan	McConnellsville	Sept. 26
Morrow	Mt. Gilead	Oct. 11-13
Muskingum	Zanesville	Sept. 5- 8
Noble	Sarahsville	Sept. 27-29
Ottawa	Port Clinton	Oct. 4- 6
Perry	New Lexington	Sept. 27-29
Portage	Ravenna	Sept. 27-29
Preble	Eaton	Sept. 26-29
Putnam	Ottawa	Oct. 4- 7
Richland	Mansfield	Sept. 26-29
Ross	Chillicothe	Aug. 15- 8
Sandusky	Fremont	Sept. 26-29
Seneca	Tiffin	Sept. 26-29
Shelby	Sidney	Sept. 26-29
Stark	Canton	Sept. 26-29
Summit	Akron	Oct. 3- 6
Trumbull	Warren	Sept. 13-15
Tuscarawas	Canal Dover	Sept. 27-30
Union	Marysville	Oct. 3- 6
VanWert	VanWert	Sept. 27-30
Warren	Lebanon	Sept. 19-22
Washington	Marietta	Sept. 27-29
Wayne	No fair this year.	
Williams	Bryan	Sept. 26-28
Wood	Tontogany	Sept. 27-29
Wyandot	Upper Sandusky	Sept. 26-29

KANSAS.

Brown	Hiawathia	Sept. 19-22
Butler	ElDorado	Sept. 4- 9
Cherokee	Columbus	Sept. 12-15
Cloud	Concordia	Oct. 5- 7
Coffey	Burlington	Sept. 19-22
Crawford	Girard	Sept. 27-29
Davis	Junction City	Oct. 4- 6
Dickinson	Abilene	Sept. 25-30
Ellis	Hays City	Sept. 27-30
Ellsworth	Ellsworth	Sept. 28-30
Franklin	Ottawa	Sept. 26-30
Greenwood	Eureka	Sept. 19-21
Harper	Anthony	Oct. 3- 5
Harvey	Newton	Aug. 30-31
Jefferson	Oskaloosa	Sept. 6- 8
Jefferson	Valley Falls	Aug. 29-Sep. 2
Jewell	Mankato	Sept. 6- 8
Johnson	Edgerton	Oct. 4- 6
Labette	Oswego	Sept. 12-15
Linn	LaCygne	Sept. 19-22
Linn	Mound City	Sept. 25-29
Marion	Peabody	Aug. 22-24
Marshall	Marysville	Aug. 29-Sept. 1
McPherson	McPherson	Aug. 29 31
Miami	Paola	Oct. 4- 7
Morris	Council Grove	Oct. 3- 6
Osage	Burlingame	Sept. 6- 8
Reno	Hutchinson	Sept. 7 9
Riley	Manhattan	Aug 27-Sept. 1
Sedgwick	Wichita	Sept. 20-24
Sumner	Wellington	Aug. 30-Sept. 2
Woodson	Neosho Falls	Sept. 24-30
Western National	Bismarck	Sept. 18-23

MINNESOTA.

Chippewa	Montevideo	Sept. 20-22

WISCONSIN.

Brown	De Pere	Sept. 19-22
Calumet	Chilton	Sept. 26-29
Central Fair	Watertown	Sept. 25-30
Dane	Madison	Sept. 19-22
Dodge	Juneau	Sept. 18-21
Jefferson	Jefferson	Sept. 19-22
Lodi Union	Lodi	Sept. 26-28
Outagamie	Hortonville	Sept. 5- 7
Portage	Amherst	Sept. 19-20
Rock	Janesville	Oct. 3- 6
Racine	Burlington	Sept. 19-20
Walworth	——	Sept. 29-30

SOUTH CAROLINA.

Anderson	Anderson	Oct. 18-20
Charleston	Charleston	Nov. 20-Dec. 16
Sumpter	Sumpter	Oct. 24-27
Union	Union	Oct. 24-26

KENTUCKY.

Anderson	Lawrenceburg	Aug. 15-18
Bath	Sharpsburg	Aug. 15-18
Barren	Glasgow	Oct. 4- 7
Boone	No fair this year.	
Bourbon	Paris	Sept. 5- 9
Bullitt	No fair this year.	
Butler	No fair this year.	
Caldwell	No fair this year.	
Calloway	No fair this year.	
Carter	No fair this year.	
Clark	No fair this year.	
Daviess	Owensborough	Oct. 11-14
Fleming	No fair this year.	
Grant	No fair this year.	
Greene	No fair this year.	
Harrison	Cynthiana	Aug. 22-26
Hopkins	No fair this year.	
Jessamine	No fair this year.	
Laurel	No fair this year.	
Lewis	No fair this year.	
Lincoln	No fair this year.	
Lyon	No fair this year.	
Marion	No fair this year.	
Mead	No fair this year.	
Mercer	No fair this year.	
Metcalfe	No fair this year.	
Ohio	Hartford	Oct. 11-15
Oldham	No fair this year.	
Owen	Owenton	Oct. 3- 7
Pendleton	Falmouth	Sept. 9-12
Pulaski	No fair this year.	
Rowan	No fair this year.	
Scott	No fair this year.	
Taylor	No fair this year.	
Trigg	No fair this year.	
Washington	Springfield	Aug. 29-Sept. 1
Webster	No fair this year.	
Woodford	No fair this year.	

MARYLAND.

Carroll	No fair this year.	
Cecil	Elkton	Oct. 3- 6
Frederick	Frederick	Oct. 10-13
Harford	Bel Air	Oct. 10-13
Howard	No fair this year.	
Montgomery	Rockville	Oct. 18-20
Queen Anne	No fair this year.	
Washington	Hagerstown	Oct. 17-20
Wicomico	No fair this year.	

DELAWARE.

Peninsula	Middletown	Sept. 19-21

MISSOURI.

Carroll	No fair this year.	
St. Charles	No fair this year.	

VIRGINIA.

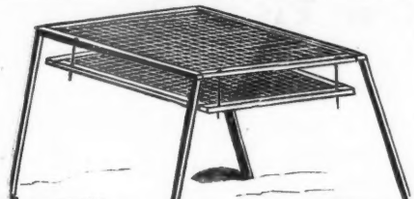
Appomattox	No fair this year.	
Caroline	No fair this year.	
Chesterfield	No fair this year.	
Frederick	Winchester	Oct. 11-14
James City	No fair this year.	
Louisa	No fair this year.	
Shenandoah	No fair this year.	
Smyth	No fair this year.	

WEST VIRGINIA.

Berkley	Martinsburg	Sept, 12-15

A Home-Made Fruit Dryer.

There are inquiries before us for the cheapest and best fruit dryer. There are several patented dryers in the market, some of which turn out a superior quality of dried fruit, but they are somewhat expensive, and not within the reach of those who have only a small amount of fruit that must be dried, without an outlay of money, or not at all. The accompanying engraving shows a form of dryer that is designed for in-door use, with the heat of a common stove. The size of the frame is determined by that of the stove, and may be made of ¼-inch material. The legs should be long enough to support the frame well above the stove, and can be fastened on



with hinges, so as to fold up when not in use. The frame may be either covered with a net-work of coarse twine or fine wire—wire cloth is best but more expensive. A second frame may be suspended below the first one, thus doubling the amount of the drying surface.

Buckwheat.—In sowing Buckwheat, the stones ought to be picked off, and the land rolled, so that in harvesting the cradle may be swung as close as possible. The crop holds the ground so short a time, the surface does not become flattened and levelled by rains and other "degrading" influences, as it does when other grains occupy the soil. The crop is certainly sensitive to frost, and must be cut early, for, while much grain will probably be immature, this will all ripen if cut before frost destroys the juices of the plant. If cut close to the ground, then raked into gavels and set up, the tops being gathered to a point, and the butts spread out, it is secure. It should stand until dry enough to thrash, and ought to be thrashed at once. In handling, use a barley fork, so as to lift a whole gavel at a time, and spread sheets or a stack-cover over the hay-rack, to prevent loss.

A Use for Canes.—"W. G. B.," writes us, that on his plantation on the South Edisto River, S. C., there grows a great abundance of cane. This is six to eight feet high, and he wishes to know if it can not be utilized in some manufacture. There are two species of Cane in the Southern States, one of which grows 20 feet high, and the other not over 10 feet. We suppose that Mr. B. has the smaller kind. He suggests that it would be in demand at a fan factory, for handles to fans. We know of no such factory, fans being imported from countries where labor is much cheaper than with us. A number of years ago the larger kind of cane was converted into paper pulp, by blowing it from a steam gun. Whether with the improved methods of making paper stock from wood, this method of using canes is still employed, we can not say, but that is the only use we can suggest for the smaller species of cane.

Velvet Grass.—"What do you think of it?" asks a correspondent. We might answer that it was a beautiful nuisance, but that would not cover the whole ground. The Velvet Grass (*Holcus lunatus*) is sure to attract attention from its peculiar gray color and soft, velvety feel. As a meadow or pasture grass it is nearly worthless, as cattle care nothing for it. Still this grass has its uses. It will grow where other grasses will not get a foothold, and a crop of it plowed under will prepare the land for better grasses and afterwards for Clover. We refer "D. H. B." to an article in July, 1871, p. 266.

Liquid Manure Tanks.—David Whipple, Somerset Co., Me. Your best plan would no doubt be to conduct the urine of your cattle and horses, by a gutter behind them to the tank. This gutter should be wide enough to shovel out conveniently. The place for the tank is under or near the manure heap, and if possible, this should be under cover. The tank may be made of wood, stone, or brick, the floor of stone laid in cement, but if of wood the tank should be packed upon the outside with clay, moistened, and well rammed down. A pump should stand in the tank, which will lift the water as high as the manure will ever reach. There should also be a spout arranged for conducting other water into the tank, from the eaves or elsewhere. The best use liquid manure can be put to, is to keep up a regular fermentation in the manure and compost heaps, and not to let it get too active. Manure is in this way greatly improved, and the liquid being absorbed, it is not lost to the soil. It may also be applied, diluted with much water, by a sprinkling or distributing cart, and in this way it especially benefits all kinds of grass.

Morgan Horses.—In answer to an inquiry for Morgan Horses, coming from "H. F. J.," Lane Co., Oregon. About the beginning of the present century, there lived a man in Vermont by the name of Justin Morgan, and he had an excellent horse. How good he was, nobody knew until after both horse and man were dead. Then it was discovered that there was a remarkable similarity in the get of this horse and the get of his sons, a large number of which were kept as stock horses. That part of Vermont, and so of other parts of New England, where there were a good many of his get, fairly grew rich by the sale of "Morgan" horses, of the third and fourth generation. People who knew no better, called the Morgans a *breed*, but they were only a *family*, not even a *tribe*. There was of all things no breeding about them—all sorts of mares bore progeny to the Morgan horses, and among this miscellaneous lot of descendants, there were some which started "families" of some distinction, and of distinctive characteristics, on their own accounts. Prominent among these sub-families is that of the "Black Hawks." Now they are all pretty much lost. They had their day; and now and then we know of a Morgan with some of the old fire and go, and tirelessness in him, but they are few. The blood exists, but it is getting thin, and even their admirers (and who did not admire them in their day,) admit that the Morgans are no more.

The Japan Persimmon.—"A.," Paint Lick, Ky. It is probable that this would succeed in your State. It is almost hardy in the climate of New York City. We have tried it twice within a few miles of the City, but it has been killed in severe winters. Once, within our knowledge, it survived in a garden in the City long enough to bear fruit, but was killed soon after. It succeeds finely in Georgia and, we think, in Virginia. The fruit is so excellent, so unlike any other, that it is worthy of trial, wherever there is a probability of success.

Worm with a Root Growing from it.—"W. S. R.," Kans. Your "Natural Curiosity," is one we are glad to see. Several years ago we had the same from Missouri, and gave a figure of it, which we here reproduce. The "worm" is the "White Grub," the larva of the May-bug or June-bug. That which appears

like "a root." is a fungus, which singularly grows from the head, giving the grub the appearance of having horns. The grub is one of the most destructive of insects, attacking all sorts of plants, from grass to strawberries and nursery trees. When any are found with these appendages do not kill them. The grub is not likely to do any injury, and it is desirable to propagate this fungus, as it is one of the means nature provides for the suppression of one of our most injurious insects.

Cattle Poisoned by Paint.—F. Alden, Allegheny Co., Pa., writes us that three full-blooded Jerseys were recently poisoned by licking newly-painted fences, and asks us to give a word of caution. We have known cows who gained access to paint in kegs to be fatally poisoned. Cattle often have a morbid appetite, and there is apparently something attractive to them in the oil mixed with the paint. We agree with our correspondent that the danger should be generally known.

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(For September, 1882, only.)

We intend to add to the *American Agriculturist* Family not less than **50,000** *new* Readers for the year 1883 (Vol. 42); and as every reader coming in *now* will help both by his own name and by what he will do in securing other new readers, we offer the following special inducements:

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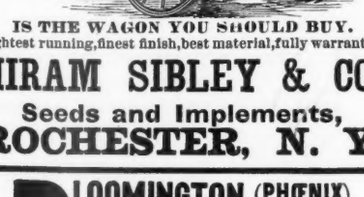

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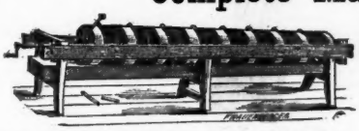

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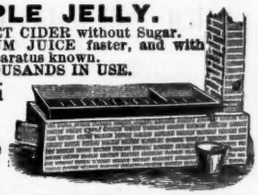

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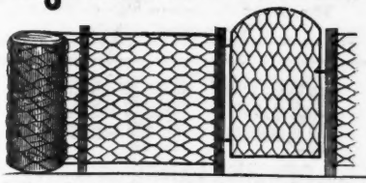

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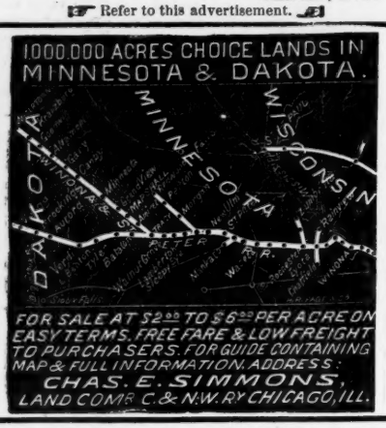
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